PAPER TRADE JOURNAL

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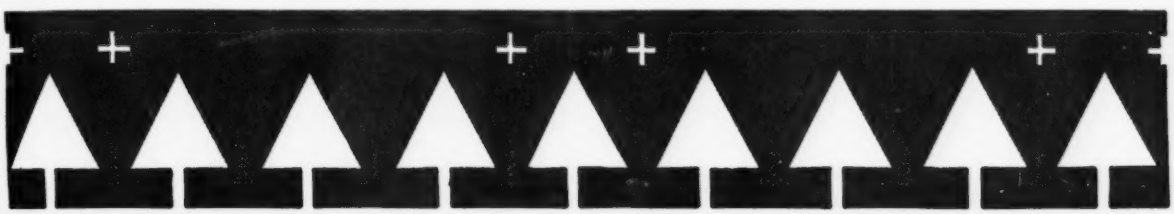

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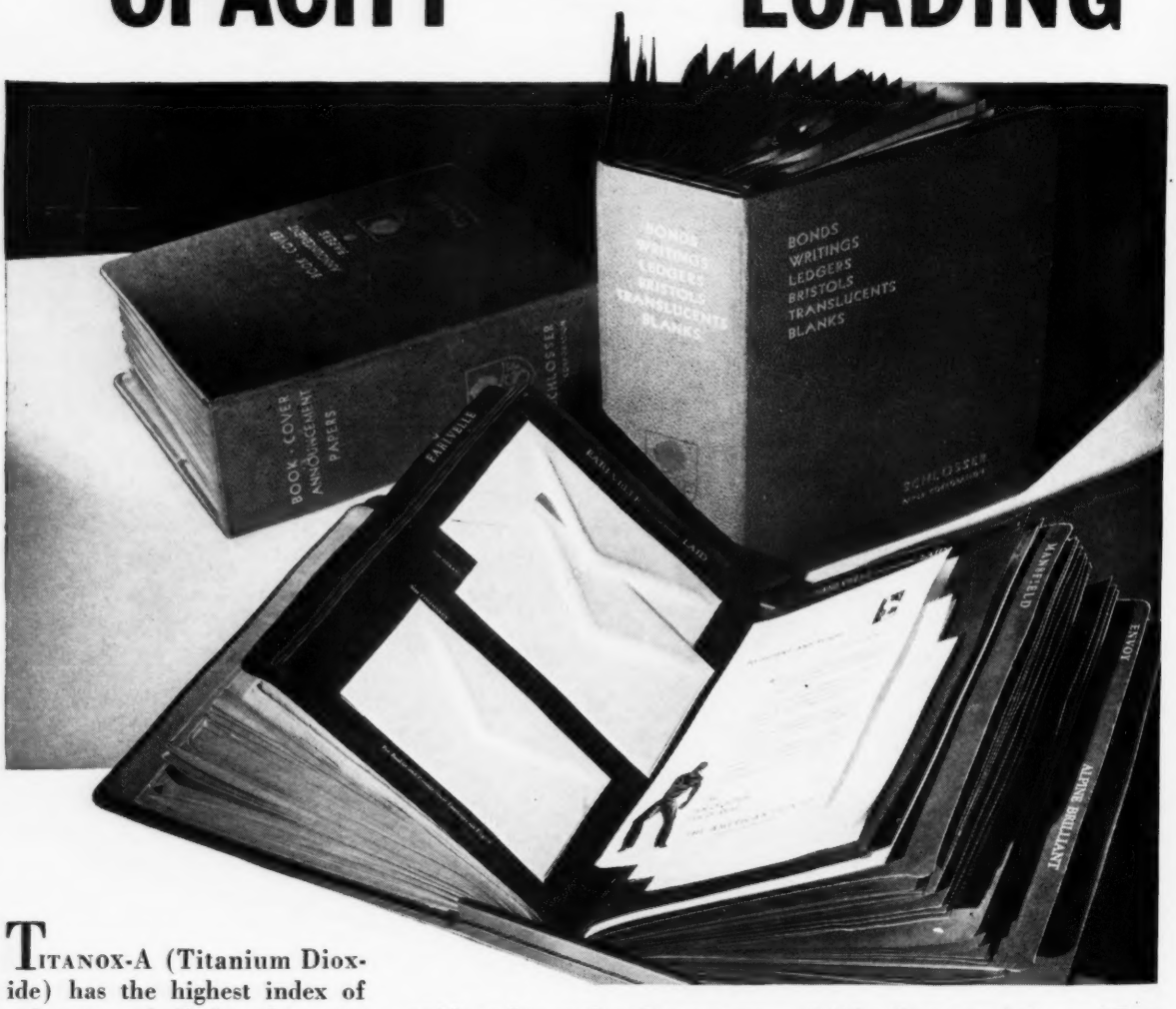

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SIXTY-FIFTH YEAR

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

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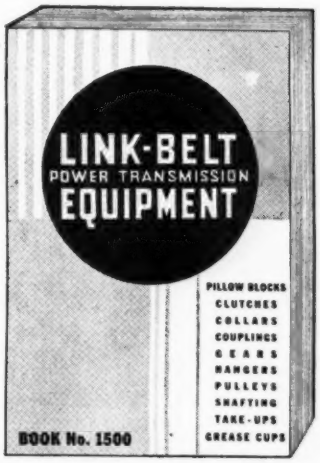

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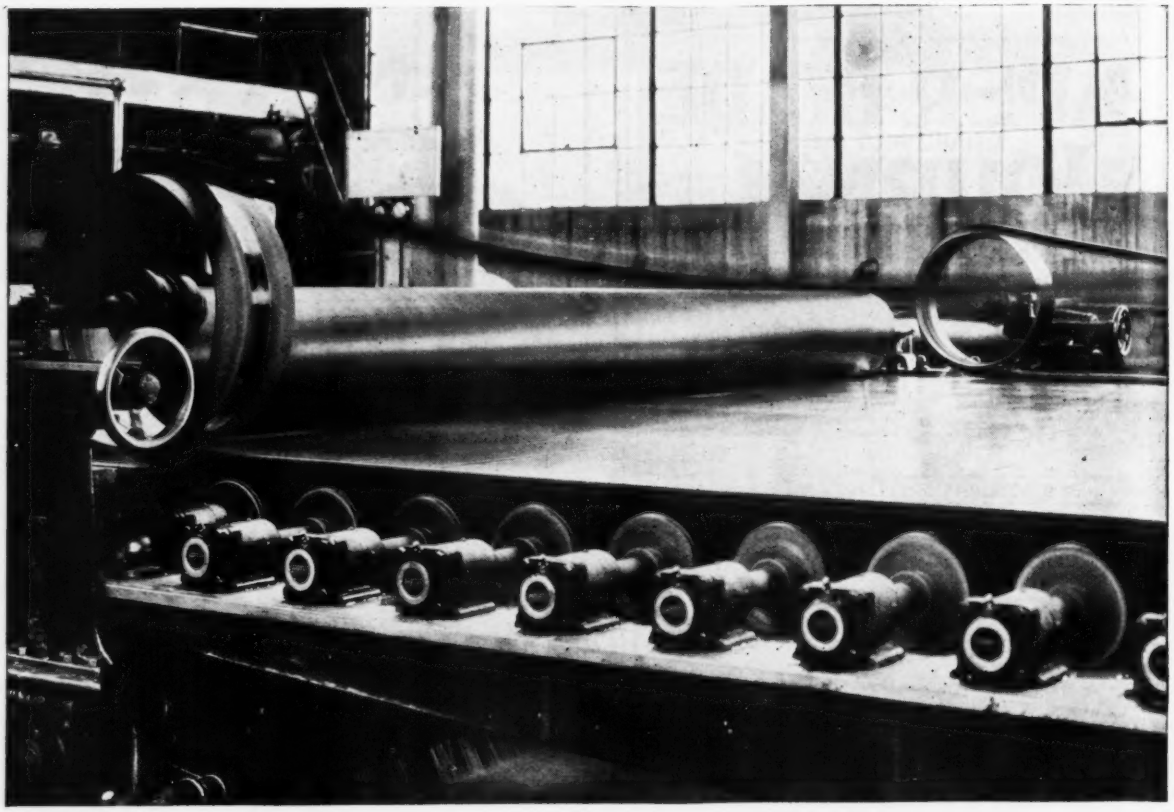

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Established Feb. 17, 1899 Consolidated Nov. 16, 1899 with PAPER TRADE JOURNAL.
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Work on Comeau Bay Newsprint Mill Progresses

Will Involve Expenditure of $18,000,000 Before End of 1938—Temporary Accommodation for 1,150 Workmen Completed—Permanent Construction of Modern Town Under Way—Temporary Power Plant to be Erected.

[FROM OUR SPECIAL REPRESENTATIVE]

MONTREAL, Que., August 24, 1936—On the north shore of the St. Lawrence, 200 miles below Quebec City, in a territory where previously there had only been a few settlements of French and Indian trappers and woodsmen, there is coming into being a modern town which is destined to be the metropolis of the wild territory known as the North Shore.

Montreal newspapers are beginning to awaken to the romance and importance of the vast newsprint enterprise which is effecting this transformation, and which is being carried out on behalf of the *Chicago Tribune* and the *New York News* by the Ontario Paper Company.

Work that will involve the expenditure of some $18,000,000 before the end of 1938 is now going ahead full blast, with the result that there is unexampled activity on both shores of the Lower St. Lawrence and particularly at the shipping center of Rimonski, on the opposite shore.

The preliminary work, involving the construction of temporary sleeping and eating accommodations for 1,150 workmen at Comeau Bay, has been completed and permanent building construction is now under way.

The enterprise involves far more than the mere building of a newsprint mill. It involves construction of docks and wharves to accommodate freight vessels; construction of roads blasted out of the rocky shore line and through sections of the Laurentian mountains; the construction of a railroad from docks to town site and mill site; the provision of a town water supply and a log driving chain; the installation of a temporary power plant to operate construction equipment; the construction at Outardes Falls of a 60,000 h.p. plant; the construction of dams to regulate water levels in lakes and rivers and the construction of boats and scows for use on these lakes and rivers. All this works is spread over an extensive territory.

The work began at Easter last, when the motor ship *Jean Brilliant* fought her way through a gale and landed in bitter cold at the mouth of the Manicouagan River the advance guard of the peacetime army that was to invade the North Shore. This guard consisted of young engineers and veteran construction men, contractors and laborers. They found a desolate shore where there was no accommodation of any kind.

Today at this spot there are frame camps to accommodate 1,150 men, there are highways and streets, sewers and water mains, a railway, substantial wharves, and the foundations of permanent buildings. Three Diesel locomotives draw loaded flat cars along the railroad; thirty motor trucks ply the highways; electric power is available; there is a telephone service for local purposes and a radio-telephone service for communication with the outer world.

And night and day drills bite into granite, steam shovels clear out excavations, and dynamite loosens rocky hillsides, while through the dense forest, roads and transmission lines are being cut.

Steamships ply up and down and across the river, some fifty to sixty miles wide at this point, and in many more or less distant centers, such as Montreal, Quebec City, Matane and Three Rivers, factories manufacturing equipment for the project are humming with activity.

Even from England some heavy equipment has been imported for it.

Great Rayon Mill for British Columbia

Meanwhile news comes from the opposite side of the continent that another project of equal size is being planned by the J. P. Meehan interests for the establishment of a giant rayon mill near Vancouver, the sum of $20,000,000 being mentioned as a probable cost.

This would involve a 100,000 h.p. development in the Cheakamus Canyon, 50,000 of which would be utilized by the mill and its accessories and the remainder of which would go to Vancouver.

The matter is being negotiated with the Vancouver City Council and the provincial government.

The Meehan interests claim to have adequate financial backing and timber limits extensive enough to supply the bulk of the pulpwood requirements for a long time.

William Meehan says if agreement is not reached with Vancouver over the Cheakamus power development the company will build the mill anyway, utilizing another power site. The development of the Cheakamus site is being opposed by the powerful British Columbia Electric Railway, which holds a franchise for provision of light, traction and power in most sections of Vancouver.

The Price of Newsprint

Indications here are that there is more or less general

(Continued on page 22)

Wisconsin Paper Mills Affected by Drought

While Plants Depending On Water Power From Wisconsin River Have Been Forced to Curtail Production, Outlook Is Improving, Due to Heavy Downpours — Reservoirs Under Construction Will Alleviate Condition.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., August 24, 1936—With water flow in the Wisconsin River down to a scant 800 cubic feet per second, paper mills depending on that source of water power have been obliged to curtail production, in some cases as much as 25 per cent. Although the Wisconsin Valley Improvement Company maintains a series of reservoirs even as far up as the lake of Northern Wisconsin, these had been sapped down by the drought to 35 per cent of capacity. Using them only on an emergency basis, the supply was expected to be exhausted by the middle of September.

Mill managers felt a bit more optimistic last week, as the all-summer drought was broken by heavy downpours several times, and there are prospects of seasonal rains from now on. The water situation has reached the other extreme, as compared with spring flood conditions, when the flow was 60,000 cubic feet per second.

Practically all of the mills are prepared for water fluctuations by the use of steam turbines or commercial power, but find it more of a problem on such extensive usage as has been necessary this summer, with the increased cost of production. The commercial power supply also was more limited than usual from sources depending on the Wisconsin River.

Grinders of the Consolidated Water Power and Paper Company were operated nights on current from the Wisconsin Public Service Corporation, but there was not a sufficient supply to manufacture enough pulp to keep the machines going six days a week. Machines at the Nekoosa-Edwards Paper Company have been run on a staggered schedule because of water shortage. Whiting-Plover Paper Company was maintaining practically normal schedules by purchasing electricity. This situation also obtained with the Stevens Point Pulp and Paper Company. Wisconsin River Paper and Pulp Company reduced its production from six to five days per week.

The Stevens Point mill of the Consolidated Water Power and Paper Company was able to operate only one generator out of four generally in use, and kept the others going with commercial power.

Mills expect this condition to be alleviated further when the vast new storage reservoirs on the Big and Little Eau Pleine Rivers are completed. Construction is now under way, and at least one will be available for use next spring.

Finding it impossible to operate with the low water supply in the Fox River, the Union Bag and Paper Company's mill at Kaukauna, Wis., closed down for a week and during that time installed new motors and machinery to enable the mill to operate without the use of water power, according to Karl R. Karlson, mill manager. The mill has now resumed operations.

Rains of the last week were timely with respect to serious forest fires which were getting into timber stands on which Wisconsin mills depend. The situation was the most serious on Isle Royale in Lake Superior, where the Consolidated Water Power and Power Company lost a portion of its season's cut. All fires are now reported extinguished. Thousands of men were pressed into service to keep the fires under control.

News of the Industry

A tax refund of $7,500 requested by the Bergstrom Paper Company, Neenah, Wisc., from the city council has been denied. The company based its demand on an assessment made on its mill of $950,000, whereas it is alleged the value does not exceed $600,000. The council based its decision on the fact that other refunds would be asked on 1935 taxes if this one was granted. The city expects the Bergstrom company to institute a tax suit to make recovery.

The second fire in two months resulted in an unestimated amount of damage at the plant of the Menasha Mill Supply Company, Menasha, Wis., last week. The company deals in waste paper. Spontaneous combustion was blamed for the fire, which required two hours to extinguish. The sprinkler system of the plant helped keep the blaze in check, and the principal damage was attributed to water. Fred M. Rosenthal, manager, estimated the damage would not be extensive.

Tolls levied on paper mills of the Wisconsin River Valley by the Wisconsin Valley Improvement Company for water power service have been approved by the Wisconsin Public Service Commission. The total levy is $76,039 for the first six months of 1936, of which the Consolidated Water Power and Paper Company, the Nekoosa-Edwards Paper Company, the Wisconsin Public Service Corporation, and the Wisconsin Power and Light Company pay the largest sums. The tolls cover the cost of operating the storage reservoir system.

A fountain has been installed by the Gilbert Paper Company, Menasha, Wis., in a private lagoon on its grounds so as to prevent the water from becoming stagnant. The company, in recent years, has landscaped the grounds and they are now considered one of the show place of the city.

A total of 2,300 persons attended the annual picnic of the Menasha Products Division of the Marathon Paper Mills Company at Menasha, Wis. A Saturday afternoon and evening were devoted to the outing at the City Park, where games and contests took place, and a dance was held. Palmer McConnell served as general chairman.

Fred Nickels, A. Lust and Bruno Kraft have been transferred by the Union Bag and Paper Company from its mill at Kaukauna, Wis. to a new mill opened at Savannah, Ga. for the manufacture of grocery and other paper bags. The mill is one of the largest of its kind in the country.

Announcement has been made of the engagement of Miss Joan Clark, Neenah, Wis., daughter of C. B. Clark, president of the Riverside Paper Corporation, and John Catlin of Appleton, Wis. Mr. Catlin is associated with the Neenah office of the Kimberly-Clark Corporation. Mr. and Mrs. Clark and their daughter have sailed for Europe to spend six weeks and will make the return trip aboard the SS Queen Mary.

Alfred Gelbke, chemist at the Munising Paper Company, Munising, Mich., and Miss Mardelle M. Reimer of Neenah, Wis., were married at the parsonage of St. Mary's church, Menasha, Wis. last week. The bride is a daughter of Philip Reimer of the Gilbert Paper Company. The couple is spending two weeks in Canada and will be at home at Munising the latter part of August.

Ontario Government and Newsprint Paper Prices

Premier Hepburn Declares Drastic Measures Contemplated to Ensure Fair Quotations Will Not Be Taken at Present, Although Province Has Power to Intervene—Newsprint Will Be Left to Struggle Forward On Its Own Feet.

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., August 24th, 1936—There must be no price cutting in the newsprint industry, according to the Hon. M. F. Hepburn, Premier of Ontario, or the move will be followed by increased stumpage dues and possibly restriction of pulpwood concessions. Although the provincial government has no present intentions of setting newsprint prices, Mr. Hepburn declared that prompt action would be taken to avert a repetition of the disastrous price wars of a few years ago. While the administration in Ontario has no direct control over newsprint quotations it could by doubling or trebling the stumpage dues soon call a halt to price slashing. At the last session of the Ontario Legislature, the Minister of Lands and Forests for the province gained almost dictatorial control over the timber limits and Premier Hepburn has indicated that the Minister could if he chose revoke or restrict pulpwood concessions. He stated that the government of Quebec has similar powers and joint action could be taken.

It is subsequently learned that the government will not take such a drastic measure as at first contemplated and that, on second thought, the industry will be left to struggle forward on its own steam from its current position, leaving it to do what it can to make the best cooperative arrangements possible.

In a later interview Premier Hepburn asserted that the government although it had the power to intervene when it saw fit, would not step in and set prices.

Threat to Spruce Supply

It appears that the European sawfly has invaded the North Bay district. Species of the insect which threatens to destroy the spruce supply of Eastern Canada has been found in Firstbrook township west of Haileybury, Lorraine township near Silver Centre, and McLaren's Bay, near Temiskaming, Que. If the sawfly from Europe should gain much headway it will play havoc with future supplies of pulpwood. It is believed that the menace will be checked. The native spruce fly is not as damaging as the European variety and officials say that it is extremely difficult to distinguish between them. H. S. Fleming, of the Entomological Branch of the federal government, Ottawa, is in North Bay, Ont., studying specimens and the extent of the infestation.

Fires Damage Pulpwood

The extensive bush fires, which have been prevailing for weeks in various parts of Ontario owing to the drought, have caused much damage to pulpwood and timber limits. Recent showers have come to the aid of several districts and the situation has much improved. Thousands of men have been fighting the flames from Parry Sound to Rainy River during the past month.

Great Lakes to Pay Bond Interest

It is learned that the recently reorganized Great Lakes Paper Company, Fort William, Ont. will make a six months' interest payment on the company's new five per cent bonds. The new issue carries a coupon calling for payment of interest on April 1 and October 1 but provision was made for a postponement of interest for a period of three years if necessary. Six months' payment is now said to be in prospect. On July 1, when the company was taken out of bankruptcy, directors sent out letters that it was impossible to meet the April payment immediately. Bondholders are being advised by the National Trust Co. that the new bonds are now ready for exchange.

New Wallpaper Factory

Stauntons, Ltd., manufacturers of wallpapers, Toronto, will erect a new factory and office in Leaside, adjacent to Toronto, at a cost of $350,000. The building will be a two story one of brick and reinforced concrete with a frontage of one hundred feet and a depth of five-hundred feet. No decision has been made as yet regarding the disposition of the company's present plant in Toronto.

Large Pulpwood Drive

The drive of the Port Royal Pulp and Paper Company on the St John river, in New Brunswick, will bring down thirty-three thousand cords of pulpwood to the plant of the company at Union Point, St. John. J. C. Maxwell, woods manager of the company, states that the drive this season is about three times as large as last. Plans for the 1937 season provide for a drive of about forty thousand cords between Hartland and St. John. The wood will be taken most from adjoining streams.

To Redeem Bonds

McCrea-Wilson Lumber Company, Ltd., which is a subsidiary of the Brompton Pulp and Paper Co., has called for redemption on October next all of its outstanding six per cent, Series A, first mortgage bonds at 102 and accrued interest. With this redemption the Brompton company will have practically eliminated all its underlying charges.

Sandy Beach Changes

The large cook house and workers' dormitory at Sandy Beach in Gaspe owned by the Howard Smith Paper Mills have been torn down and all the good lumber and interior fittings have been shipped to the headquarters of the company at Cornwall, Ont. Now all that remains of the former busy Sandy Beach are the rossing plant and drum barker. The limits of the company on the St. John river above Douglastown are now under lease to the Crown Lumber Company whose new mill is located at Haldimand. The drum barker of the Canadian International Paper Company, whose pulp mill at Gaspe Harbor was destroyed by fire several summers ago, has also been dismantled and shipped to Three Rivers, Que.

Gummed Products Co. Buys Machine Shop

DAYTON, Ohio, August 24, 1936—The Gummed Products Company of Troy has purchased the Schafer Machine Shop, owned by Charles Schafer of Urbana, Ohio, and operated by his son, A. W. Schafer. The shop is located between Mulberry and Walnut streets, in Troy, and was operated for many years by the late George Kelley. The equipment is being moved this week to the Gummd Products plant.

Demand for Paper Well Sustained In Boston

Strong Undertone Experienced In Both Fine and Coarse Paper Markets—Request for Kraft Wrapping Paper Better Than for Some Time Past—Paper Bags Moving In Good Volume—Board Market Shows Improvement.

[FROM OUR SPECIAL REPRESENTATIVE]

BOSTON, Mass., August 24, 1936—The wholesale paper business in Boston has been holding remarkably well for August and the last week was particularly active. This condition was generally true in both the fine paper division and the wrapping paper division. In fine papers, tag stock was especially mentioned as being in demand. At one house handling wrapping paper, it was stated business was good, holding up very well indeed, better than for a long while. The paper bag business was good, according to a statement at the office of a large manufacturer. The box board market showed improvement, with indications that there would be a good fall business.

As a whole, the paper stock market was in favorable condition, pointing to an active fall. The demand for old papers was good. Mixed papers and old newspapers increased in activity. Each of these grades is now quoted at a flat .35, compared with a range for each the previous week of .32½ @ .35. Bagging was steady. New domestic rags were likewise steady, and old domestic rags maintained the same levels as the previous week. Foreign rags were too high for trading to any extent, if at all. The twine business was fair.

News of the Industry

An elaborate book, prepared by Linton Bros. Company, is being shown to printers of New England by salesmen of Carter, Rice & Co., Corp. and by salesmen of Von Olker-Snell Paper Company. In the book is presented a variety of commercial jobs on Bristol, offering merchandising ideas, novel shapes, good typography and color effects. It is a practical demonstration book, containing specimens from all parts of the country, each one aptly showing the adaptability of Bristol for a definite printing requirement. They present novel, interesting ideas for mailing cards, die-cut folders, announcements and many other forms of advertising mediums.

Linton Bros. are planning to supplement this valuable book during the fall and winter months by a series of demonstration kits, which will be mailed to the printing trade. They will contain more of these Bristol ideas which can be retained for their files.

A new and distinctive line has been developed by the Hammermill Paper Company, Dura-Glo Hammermill Cover which is being stocked by the Worcester Division of Carter, Rice & Co., Corp. "Cellophane" has been laminated to one side of the sheet, making this surface waterproof, soil proof and crack proof—an ideal stock for menus, recipe book covers, charts, catalog covers, window cards, counter display and numerous other purposes where the outside surface of a piece is being continually subjected to excessive handling and moisture.

Carter, Rice & Co., Corp. have a very attractive window display of Scott products, made by the Scott Paper Company. It includes Household Tissues, Scott Tissue Toilet Paper and Scott Paper Towels.

Chet Spaulding, assistant sercetary of the National Paper Trade Association of the United States, with headquarters in New York City, called on members of the association in Boston last week. Mr. Spaulding had been on a vacation in Maine and was on his way back to New York.

E. O. Hanson, regional manager of the Brown Company, Portland, Me., has returned to Boston after a two weeks' vacation at Segbago Lake.

Willard H. Loud, president of Stimpson & Co., Inc., has returned from a vacation at Craigville, Mass., and expects to go to the same place again for another week on September 12.

Donald A. Bartlett, a director of Stimpson & Co., left Saturday for Bow Lake, N. H., where he has a summer residence on the lake opposite Jack Sharkey's training quarters.

M. Lincoln Simpson, secretary of Knight, Allen & Clark, Inc., is passing a vacation with his family at Humarock Beach, Scituate, Mass.

Kenneth L. Moses, New England representative of the St. Regis Paper Company, has returned from a week's trout fishing in Northern New Hampshire with his family, bringing back a good catch.

The Missisquoi Corporation, Sheldon Springs, Vt., announces that Joseph W. Dixon has joined the sales organization, with headquarters at 89 Broad street, Boston.

Hot Spell Lowers Water in Connecticut

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., August 25, 1936—The long drought and hot spell began to affect the Connecticut River last week and the head gates to the canals were closed twice during the week for 12 hour periods to allow the "pond" above the dam to fill up. There is some debate as to whether the mud and silt brought down in March and which formed large sand bars up the river in some places may not have affected the pond so that it is drained down sooner. So far as the bulk of paper making is concerned there has been little change for the past two or three weeks, but this is normal as the "doldrums" in the business outcome at this time. Being election year also slows up business here. Confidence is felt for a satisfactory fall and winter business both by the paper manufacturers and the paper converters.

Union Bag Asks Cut in Assessments

[FROM OUR REGULAR CORRESPONDENT]

HUDSON FALLS, N. Y., August 24, 1936—It was stated here that Union Bag and Paper Company is seeking a substantial cut in its assessments. The assessors have tentatively increased the assessment ten per cent on the property of the company in this village and protests were immediately made. The matter is still pending and another conference is scheduled next week with representatives of the company and officials.

A petition to amend the charter of the Union Bag and Paper Corporation of Georgia to provide for an increase in capital of $4,000,000 has been filed by attorneys. The original capitalization of the company which recently constructed a $4,000,000 plant in Savannah was $1,500,000. Plans were recently announced for an addition to the plant which will double its capacity.

Container to Install New Folding Carton Unit

Addition to Manayunk, Philadelphia, Plant Planned to Serve Eastern Customers—Will Begin Operating in Early Fall—Pulp Bleaching Corp., of Orange, N. J., Orders Seven Vertical Bleacher Units From Moore & White

[FROM OUR SPECIAL REPRESENTATIVE]

PHILADELPHIA, Pa., August 24, 1936—To better serve their eastern customers, the Container Corporation of America announce the installation of a folding carton production unit at its Manayunk, Philadelphia, plant. The equipment is now being installed and will be in operation early this fall. The Moore & White Company reports orders for the following machinery: A special felt stretching machine for the Asten-Hill Manufacturing Company, East Falls, Manayunk, Pa., manufacturers of asbestos felt; a machine for making asbestos building-siding for R. J. Dorn, of New Orleans, La. This latter machine it is expected will be delivered in about eight weeks. This company also reports order for seven vertical bleacher units for Pulp Bleaching Corporation, Orange, N. J.

Penn. Salt Earnings Up

Pennsylvania Salt Manufacturing Company reports earnings for the twelve months ended June 30, after deduction for maintenance, depreciation, depletion, all Federal, State and local taxes, including provision for surtax on undistributed profits, as $1,285,645, equal to $8.57 a share on the capital stock outstanding. This compares with earnings of $891,086 or $5.94 per share for the previous year.

The Pennsylvania Salt Manufacturing Company was incorporated in 1850, the original charter extending for a period of ten years and the purpose set forth being to manufacture salt and resultant products. The original capital stock of $100,000 has been increased to $7,500,000; the first dividend having been paid in 1863, which payments have continued without a breakup to the present day.

The admirable location of the first plant at Natrona, Pa., was no small factor in the growth of the company. The plant was situated on the Allegheny River, 25 miles from Pittsburgh in a country rich in salt and coal—the natural advantages essential to the success of a chemical company.

This plant today produces in large quantities sulphate of alumina, salt cake, sodium aluminate, muriatic acid, sulphuric acid, sal ammoniac, Kryolith, and Kryocide (the new insecticide).

Its Philadelphia plant, purchased in 1870 consists of 66 acres situated on the Delaware River. Here the company produces various chemicals, especially sulphuric acid, alums, fertilizers. A refilling station supplies the small package liquid chlorine trade of the Philadelphia and New York trade areas. The buildings at this plant cover more than ten acres.

In 1898 the company bought near Detroit the site for its Wyandotte plant, under which lies a vast deposit of solid salt. It is estimated that 500 tons a day could be mined from this salt bed for 200 years and not exhaust the deposit. This property has a frontage of 3,000 feet on the Detroit River. The chief products of this unit are caustic soda and chlorine, the hydrogen produced at the same time being used to manufacture ammonia to treat vegetable oils, and for the direct synthesis of muriatic acid. Also are produced Perchloron, bleaching powder, sal ammoniac, sodium orthosilicate, ferric chloride, salt, and carbon tetrachloride.

One of the great advances made by this company in recent years is the removal of salt from electrolytic caustic soda. The purity of the caustic is about equal to that produced from mercury cells, and it has an iron content of less than .0003 per cent.

Another recent development of value is their method of chlorinating paper pulp (protected by U. S. Patent No. 1,971,241). It was discovered that minute bubbles of chlorine acted on paper pulp at a much greater rate than had hitherto been possible. Because of this rapid action it became possible to treat paper pulp in open vessels, and the work that had previously taken hours is done in a few minutes. Thus a great reduction in cost results. The bubbles are so fine and are mixed with water in the form of an opaque emulsion or dispersion which carries with it chlorine up to 60 grams per liter of water. This is far beyond the solubility of the gas in water.

Due to the rapid development of the pulp and paper mills in the states of Washington and Oregon, and the demand for short haul chlorine, the Salt Company purchased a plot of forty acres of ground at Tacoma, Washington, in 1927 for the construction of an electrolytic plant. A subsidiary company was formed known as the Pennsylvania Salt Manufacturing Company of Washington, which now has a fine plant erected on the Hylebos Waterway, primarily for the production of chlorine and caustic to serve the pulp and paper mills in the Pacific Northwest.

The Pennsylvania Salt Manufacturing Company has grown from a small one-plant unit to a company with four large plants and six district sales offices spread throughout the country which enables it to give national distribution and service on its products.

News of the Industry

Announcement is made by Simon Walter, of Simon Walter, Inc., Philadelphia, that additional lines which have been taken on by their Lehigh Valley Paper Mill, known as the Allentown Division, and Andrews Paper House, known as the York Division, will also be handled here in their Philadelphia headquarters. Two men have been added to the sales force of the Allentown Division and one to the York Division. The sales force here in Philadelphia has also been augmented by two men. Mr. Walter states that, due to the addition of these new lines of paper, more men will be required at their various Divisions in the early fall. A new Mack truck has recently been acquired by the Allentown Division, to take care of increased business.

Eugene Parkes, manager of the Lehigh Valley Paper House, Allentown, Bertram R. Moore, vice-president of Simon Walter, Inc., and manager of Andrews Paper Company, York, together with Mr. Walter are planning to attend the Hammermill Conference in Erie on August 27 and 28.

John Seckel, secretary of Paper Merchants, Inc., is vacationing on his farm in Kane County, Pa.

Ormond Freile, vice-president and manager of sales of Paper Merchants, Inc., will be in Erie this week attending the 25th annual convention of Hammermill dealers.

Federal Trade Commission in Annual Report Discusses Robinson-Patman Act

WASHINGTON, D. C., August 26, 1936—In view of the widespread interest in the paper industry in the administration of the new Robinson-Patman law a discussion of this act in its forthcoming annual report by the Federal Trade Commission should be of special interest. In this connection the Commission says:

Recent Amendments to Section 2 of Clayton Act

"The Robinson-Patman, Borah-Van Nuys Act, Public 692, was signed by the President on June 19, 1936.

"The Robinson-Patman bill as originally introduced amended Section 2 of the Clayton Act defining unlawful price discriminations and supplemented the Section by declaring certain other forms of discrimination to be unlawful. The Borah-Van Nuys bill was directed toward making certain price discriminations a criminal offense.

"Both bills were designed to prevent arbitrary discrimination in the course of interstate commerce as a result of which sellers conferred substantial competitive advantages upon some customers and not upon others, or as sometimes stated, to restore equality of opportunity in business without penalizing service and efficiency. As finally passed, the Act is a consolidation of the provisions of the various bills introduced in Congress by Senator Robinson, Congressman Patman, Senators Borah, Van Nuys and others.

"A comparison of the principal provisions of the amended section and of the section as it had stood since its original enactment in 1914, is presented in the following parallel columns. This comparison will show the principal points of difference between the old and the new law.

Original Section 2	*Amended Section 2 (Note: New language underlined.)*
Declares it unlawful to discriminate in price in the course of interstate commerce between different purchasers of commodities sold for use, consumption or resale within the United States, subject to the following requirements:	Declares it unlawful to discriminate in price in the course of interstate commerce between different purchasers of *"like grade and quality, where either or any of the purhases"* are made in the course of interstate commerce and where the commodities are sold for use, consumption or resale within the United States or its possessions, subject to the following requirements:
(a) That the effect "may be to substantially lessen competition or tend to create a monopoly in any line of commerce."	(a) That the effect "may be substantially to lessen competition or tend to create a monopoly in any line of commerce, *or to injure, destroy or prevent competition with any person who either grants or knowingly receives the benefit of such discrimination or with customers of either of them."*
(b) That the discrimination be not "on account of differences in the grade, quality or quantity of the commodity sold" or make other than "due allowance for difference in the cost of selling or transportation."	(b) That the discrimination make other than *"due allowance for differences in the cost of manufacture, sale, or delivery resulting from the different methods or quantities in which such commodities are to such purchasers sold or delivered."*
(c) That the discrimination "in the same or different communities" be not "in good faith to meet competition."	(c) The amended section does not contain the equivalent to (c) in the other column, but provides that as a matter of proof a prima facie case of discrimination may be rebutted by the seller *"showing that his lower price or the furnishing of services or facilities to any purchaser or purchasers was made in good faith to meet an equally low price of a competitor, or the services or facilities furnished by a competitor."*
(d) That the discrimination be not the result of the sellers selection of customers "in bona fide transactions and not in restraint of trade."	(d) That the discrimination be not the result of the sellers selection of customers "in bona fide transactions and not in restraint of trade."
(e) Nothing equivalent to (e) in the other column appears in the original section.	(e) That the discrimination be not the result of *"price changes from time to time where in response to changing conditions affecting the market for or the marketability of the goods concerned, such as, but not limited to actual or imminent deterioration of perishable goods, obsolescense of seasonal goods, distress sales under court process or sales in good faith in discontinuance of business in the goods concerned."*

"An important proviso which qualifies (b) in the second column above is that where the Federal Trade Commission finds 'that available purchasers in greater quantities are so few as to render differentials on account thereof unjustly discriminatory or promotive of monopoly in any line of commerce' it 'may, after due investigation and hearing to all interested parties fix and establish quantity limits and revise the same as it finds necessary, as to particular commodities or classes of commodities.' Thereafter in such cases differentials based on difference in quantities greater than those so fixed and established are not permissible.

"The new Act includes some important provisions that

are in the nature of extensions of the principle of non-discrimination. These extensions are independent of the prohibition against the discriminations in price as such. The methods forbidden were evidently considered as either constituting indirect price discrimination or other forms of discrimination which had effects similar to price discrimination. The payment of brokerage, commission, or other compensation in lieu thereof to an intermediary is forbidden, except for services rendered, where the intermediary 'is acting in fact for or in behalf, or is subject to the direct or indirect control' of any party to the transaction other than the one paying the intermediary's compensation. Allowances for advertising and sales promotion work are declared unlawful unless they are made 'available on proportionally equal terms' to all customers who compete with one another. It is also declared unlawful to discriminate between purchasers of a commodity bought for resale by furnishing any services or facilities for processing, handling, selling, or offering for sale, that are not 'accorded to all purchasers on proportionately equal terms.' The new Act specifically declares it unlawful for any person engaged in commerce 'knowingly to induce or receive a discrimination in price' that is prohibited by the amended Section 2. The new Act affirmatively protects the right of a cooperative association to distribute its earnings in proportion to the volume of dealings of its respective members.

"As an aid to more effective enforcement of Section 2 of the Act, the Act provides that when the Commission shall have established a prima facie case of 'discrimination in price or services or facilities' the burden of rebutting such a case shall be upon the alleged violator and 'unless justification shall be affirmatively shown' the Commission may order the discrimination terminated. The theory of this provision is that the facts which constitute justification are necessarily in the possession of the alleged discriminator. The Act preserves all rights of action arising, litigation pending, and orders of the Federal Trade Commission, based on Section 2 of the Clayton Act, issued and in effect, or pending on review prior to passage of the new Act. Provision is made for reopening of proceedings concluded under the old law and the modification or amendment of the Commission's original orders to include any violations found of the new law. Court review is provided for as in the case of the old law.

"Section 3 of the new Act makes it a criminal offense and provides a penalty of fine or imprisonment of persons who knowingly discriminate or assist in discriminating. This section, however, sets up a definition of criminal discrimination which is not identical with the definitions of discrimination contained in Section 2A to F inclusive of the new Act. Section 3 of the new Act also makes it a criminal offense to sell goods in any part of the United States at prices lower than elsewhere in the United States for the purpose of destroying competition or eliminating a competitor. It is also a criminal offense to sell goods 'at unreasonably low prices for the purpose of destroying competition or eliminating a competitor.'

"Authority to enforce compliance with the new Act, as distinguished from criminal proceedings, is by virtue of Section 11 of the Clayton Act vested in the Commission in all cases in which the new Act is not applicable to common carriers subject to the Interstate Commerce Act, as amended, to common carriers engaged in wire or radio communication or radio transmission of energy or to banks, banking associations and trust companies.

"The Interstate Commerce Commission has authority to enforce compliance by common carriers subject to the Interstate Commerce Act as amended; the Federal Communications Commission has authority to enforce compliance in cases applicable to common carriers engaged in wire or radio communication or radio transmission of energy; while the Federal Reserve Board has authority to enforce compliance where the Act is applicable to banks, banking associations, and trust companies.

"Other proceedings for violation and threatened violation of the new Act are provided for by other sections of the Clayton Act.

"Under Section 15, the Department of Justice is given the power to institute proceedings to prevent and restrain violations of the new Act and the right of any person, firm, corporation, or association for injunctive relief against threatened loss or damage by violation of the new Act is provided in Section 16 of the Clayton Act, excepting that an action for injunctive relief for threatened loss or damage may not be brought against any common carrier subject to the provisions of the Act to Regulate Commerce approved February 4, 1887, in respect to any matter subject to the regulation, supervision or other jurisdiction of the Interstate Commerce Commission.

"In addition to the proceedings that may be instituted to enforce compliance with, and to restrain violations of the new Act, a person who is injured in his business or property by reason of violations of the new Act may sue for three-fold damages and cost of suit, including a reasonable attorney's fee. This is provided for by Section 4 of the Clayton Act."

Government Paper Bids and Awards

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 26, 1936—The Government Printing Office has received the following bids for 2,000 sheets of Quaker drab cloth lined cover paper; Whitaker Paper Company, at $153.00 per M sheets; R. P. Andrews Paper Company, $163.00; Reese & Reese, Inc., $153.00; J. R. Howarth Paper Company, $114.00; Virginia Paper Company, $165.00; Dobler & Mudge, $156.00; and Royal Card & Paper Company, $164.37.

For 2,050 sheets of cross section paper; Eugene Dietzgen Company, $12.00 per M sheets; Keuffel & Esser Company, $15.60; Federick Post Company, $13.00; and J. H. Weil & Co., $14.00.

For 734 pounds (2,000 sheets) of 30 x 33 red sulphite paper; Tarentum Paper Mills, Inc., 8.11 cents per pound; Mathers-Lamm Paper Company, 12.5 cents; and Royal Card & Paper Company, 10.8 cents.

The United States Supply Company has been awarded the contract for furnishing 3,000 pounds of No. 1 gummed kraft paper in 24 inch rolls at 6.5 cents per pound, bids for which were received on August 10.

The Mathers-Lamm Paper Company will furnish 1,125 sheets of 21 x 32 white gummed paper at $13.40 per M sheets. The same firm will also furnish 650 sheets of 20 x 25 pink gummed paper at $13.33 per hundred sheets. Bids for both of these items were received on July 17.

The Mathers-Lamm Paper Company will also furnish 1,115 pounds (7,550 sheets) of 19 x 24 high finish red sulphite tag board at 11.83 cents per pound, bids for which were received on July 3.

To Liquidate Taylor Atkins Paper Co.

[FROM OUR REGULAR CORRESPONDENT]

HARTFORD, Conn., August 24, 1936—Taylor Atkins Paper Company, Inc., of Burnside is to be liquidated and a special meeting of stockholders has been called for September 4 to ratify the action of the directors in so voting. This company was sold last November to the Taylor Atkins Paper Mills, Inc., which is now being operated by officers of the Stevens Paper Mills Company of Windsor.

Obituary

George L. Leonhard

Word has been received by the PAPER TRADE JOURNAL of the death on August 19 of George L. Leonhard, president of the Paterson Parchment Paper Company of Bristol, Pa., at the home of Mr. and Mrs. James E. Bale at Bay Shore, L. I. His age was 66.

Mr. Leonhard suffered a heart attack on August 6 while visiting with Mrs. Leonhard at the Bale home. The Bales are the parents-in-law of his son, John T. Leonhard of Abington, Pa.

Mr. Leonhard lived in Trenton, N. J. He moved from Passaic, where he had lived since 1904, shortly after the operations of the Passaic plant of the Paterson Parchment Paper Company, one of the city's leading industries, were transferred to Bristol.

Besides his widow and son, another son, George Russell Leonhard of Sparta; four grandchildren and a sister, Mrs. William F. Brunner of East Orange, survive.

Mr. Leonhard was born in Haledon. His father, Theodor, founded the Theodor Leonhard Wax Company in Paterson. In 1885 he introduced the manufacture of parchment paper to the United States. In a few years the company had outgrown its quarters, and in 1889 it moved to a new plant in Passaic.

Shortly after the turn of the century the Paterson Parchment Paper Company bought the Megargee Paper Mills in Modena, Pa.

Mr. Leonhard attended a "little red school house" in Haledon and later studied at the Paterson Seminary and the Paterson Business College. For a time he was in the hardware business. In 1889 he entered the employ of the parchment company.

During the World War Mr. Leonhard served as chairman of Draft Board No. 1. He worked for the Red Cross and in Liberty Loan drives.

For several years he was a director of the Passaic Chamber of Commerce and served on the Board of Education. He was also a member of the board of governors of the Passaic General Hospital and a director of the Peoples Bank and Trust Company.

He was an officer of the Passaic City Club, the Passaic Elks Club and the Old Colony Club. Mr. Leonhard was one of the founders and first president of the Passaic Rotary Club.

Harry A. MacDonald

BOSTON, Mass., August 24, 1936—Harry A. MacDonald, aged 44, of 323 Waltham street, West Newton, Mass., vice-president of the Bicknell & Fuller Paper Box Company, died last week.

Mr. MacDonald had lived in West Newton for six years, and previously in Brookline. He attended Phillips Andover Academy and the Massachusetts School of Pharmacy, and was a world war veteran, serving in a medical unit.

Besides his widow, Mrs. Elizabeth MacDonald, he leaves two sons, Bruce and Allen and a brother.

Luther Lindauer

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., August 24, 1936—Luther Lindauer, 77 years old, who was associated with early paper manufacturing developments at Kaukauna, Wis., died recently at his home at La Habra, Cal., where burial took place.

Mr. Lindauer came to Kaukauna as a laborer in 1882. He started operating a stone quarry and then purchased what was known as the Tom Reese pulp mill. He operated the mill until pulpwood supplies became more remote and built similar mills on the Fox River at Little Rapids, Wis., and at Grand Rapids, Minn. He was a stock fancier, and operated stock farms at these places. He sold his holdings in 1912 and moved to California, where he made a fortune in oil. He served as mayor of Kaukauna in 1892, and was president of the city's first fire and police commission in 1910. He was operating a large fruit farm in California at the time of his death.

Northwestern Superintendents To Meet

The fall meeting of the Northwestern Division of the American Pulp and Paper Mill Superintendents' Association will be held at Duluth, Minn., on Friday and Saturday, September 11 and 12.

Registration will take place at the Hotel Duluth Headquarters at 9:00 A. M. on Friday, followed by group meetings as follows: General, under the leadership of Dr. Walter F. Hoffman of the Northwest Paper Company; Sulphite, led by S. E. Tomczak of Flambeau Paper Company; Sulphate and Soda, led by Mr. C. K. Textor of the Northwest Paper Company.

Luncheon will be served at the Northland Country Club followed by an 18-hole Golf Tournament. The joint banquet will be given at the Hotel Duluth Friday evening.

Saturday's program includes a general business meeting and election of officers, followed by a 3-hour trip on the S. S. "Montauk" through the Duluth-Superior harbor and up St. Louis Bay to Fond du lac.

A special program for the ladies provides interesting entertainment for the two days.

Rooms may be reserved at the Hotel Duluth either direct or through C. J. McNair, Jr., general chairman.

O. L. Le Roux and C. I. McNair, Jr., of the Northwest Paper Company are president and secretary respectively, of the division.

To Use Seaweed for Paper

WASHINGTON, D. C., August 26, 1936—Steps are being taken to utilize the millions of tons of seaweed washed up annually in the Hebrides, lying northwest of Scotland according to a report from Consul E. Talbot Smith at Dundee. An organization has been formed to carry on the work and experiments are now being conducted in the manufacture of transparent paper from this seaweed, and have met with such success that rights to collect it have already been bought. The seaweed used is Laminaria Digitata.

The organization plans to set up a mill in North Uist, the central island of the group for the purpose of manufacturing cefoil paper and will erect a chain of stations all along the Hebrides. The kelp industry is reported absolutely dead, but it is estimated that three million tons of seaweed are washed up in the Hebrides annually.

Fort William-Port Arthur Mills Busy

The 8 paper mills in the Fort William-Port Arthur consular district operated at 64 per cent capacity in July compared with 63 per cent in the preceding month and 57 per cent during the corresponding month in 1935, according to reports from Vice Consul H. T. Dwyer, Fort William-Port Arthur, Ontario. An announcement was made by the Minister of Lands and Forests, while on a recent visit here, that the re-organization of one of the largest newsprint companies is proceeding satisfactorily and by autumn there should be a definite program of operations announced for the company's local mill.

H. N. Lee Joins Arthur D. Little, Inc.

Horace N. Lee with a background of twenty years of diversified microscopic study experience in the study of wood and other paper making fibers, has joined the staff of Arthur D. Little, Inc., Cambridge, where he will be available to paper manufacturers and users for the solution of paper making problems. His graduate training in microscopy at Harvard University, followed by his work in the department of Timber Physics at the Forest Products Laboratories, Canada, on wood paper making fibers, including the preparation of photomicrographs and the causes of decay in paper making woods, were excellent preparation for the microscopic and microchemical investigations that he subsequently made at the Hammermill

H. N. Lee

Paper Company in Erie, Pa. Mr. Lee has published numerous articles including studies of the causes of paper mill slime and methods for their removal, studies of the causes of paper deterioration and wood decay, and investigations of method for positive paper fiber identification.

For the past three years he has been developing, as a member of the research staff of Harvard University, under the direction of Professor Oakes Ames, a number of precise and efficient methods for sectioning and staining paper fibers in the study of coated, sized, filled, and laminated papers.

He is prepared to work on problems involving fiber and wood identification, storage and decay of wood, deterioration of paper, especially when due to biological causes, treatment of paper mill slimes, and their removal, coating and sizing problems in paper involving mineral, pigment, starch, rosin, glue, etc., penetration of writing and printers' ink, penetration of vehicles, pigments, and liquids of all kinds into paper, application of adhesive and protective film to paper and wood, and application of lamination and impregnation to plywood, roofing papers, etc. In addition he is prepared to pass upon the worth of new paper making products and processes, prepare patents in the paper field, and recommend treatment of wood to increase resistance to fire and decay. His work also includes evaluation of papers for all kinds of specific uses, identification of dirt in paper, comparing papers with the products of other manufacturers, the making of studies in conjunction with paper improvements, standard specifications, uniformity and interpretations of other tests, developments of new, unique, and efficient methods for microscopic and microchemical study of paper and paper fibers, preparation of slides, photomicrographs, and descriptive diagrams, the rendering of technical assistance in the preparation of sales and advertising material, including photographs for paper publicity, the identification and restoration of valuable documents, detection of forgeries and substitutions, estimates of the age of paper and conditions under which it was made, and developing of papers with special properties for special uses to definite specifications such as mimeo, duplicator, water-proof, oil-proof papers, etc.

B. C. Pulp & Paper Co. Makes Improvements

VANCOUVER, B. C., August 17, 1936—The B. C. Pulp and Paper Company has now completed installation of chemi pulp plants at its plants in Port Alice and Woodfibre, B. C., the project involving an outlay of $200,000. With the completion of the installation, it is expected that the company will be able to increase its efficiency, raise the quality of its product, and reduce overhead costs to an appreciable extent.

Circular acid accumulator buildings and automatic gas relief control units were added to the equipment of both plants, and at Port Alice a system of steam flow meters on each of the digesters, similar to the system already operating at Woodfibre, was installed. Meters to give greater control over the uniformity of the products were installed at both plants.

The highest quality stainless steel has been used in all the piping and fitting used in all the installations, and all were of the most modern type.

The hog fuel activities of the Port Alice plant have been responsible for a further expenditure of $50,000 for installation of a new hog fuel conveyor system at that point. At the present time hog fuel is shipped to Port Alice from Vancouver Island in four old hulks, and $50,000 has recently been spent by the shipping and lumber companies engaged in the supplying and transportation of the fuel from Vancouver Island points to Port Alice.

A system for pre-heating the air for the boilers at the Port Alice plant is now being installed at an additional cost of $30,000.

Artificial Leather Patent

Apparatus which makes artificial leather out of paper has been patented by John B. Catiin, Appleton, Wis., and Rudolph A. Moravek, Neenah, Wis., and the commercial rights assigned to the Kimberly-Clark Corporation, Neenah, Wis. The patent was applied for in 1932 and was granted last week.

The process presses together rolls of crepe paper run through the machine. A binding liquid is applied after which the web is further treated. The patent is on a large vertical machine 15 feet high and 40 feet long.

It impregnates crepe wadding with rubber latex. The product is used to make shoes, inner soles, handbags, pocketbooks and other products resembling genuine leather, and of a durable wearing quality. The Neenah mill is manufacturing the material, having used the process since December, 1931.

Mt. Tom Sulphite Co. Busy

MT. TOM JUNCTION, Mass., August 25, 1936—The Mt. Tom Sulphite Company is enjoying a period of prosperity, the best since the March floods. They now employ in their shifts 153 employees. About 25 have been added the past few weeks.

Indianapolis Demand Improves

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., August 24, 1936—A steady expansion in virtually all lines of the paper business featured last week in this territory. The fine paper demand, including most lines of books, ledgers and bonds showed some life after a slump during mid-summer. And this increase was made in spite of the fact that temperatures were abnormal during the entire week and there is no present indication of the fall season starting. A number of old customers who have been virtually out of the market for some time began placing orders.

Demand for all summer specialties continued unabated due largely to hot weather. Dealers say they believe, with present weather, there will be a good demand until at least September 15, but most of the trade is preparing for a decided slump immediately after Labor Day. It is certain the demand this year will far surpass that of a year ago and every other preceding year except perhaps 1929. Tissues also are reported moving nicely.

Business in the container field has shown considerable increase since the first of the month and indications point to an exceptional fall. There has been some slump in demand from those industries affiliated with the automotive field, but in all other lines there has been expansion. Practically all central Indiana factories are at nearly maximum production and order files are well filled.

The building paper demand has shown no cessation since the first part of the hot weather period and the outlook for fall building is good. This will be the best year for several in this field. Prices are being held firmly and warehouse stocks are somewhat depleted.

Build Paper Machine for Smith Paper Co.

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., August 24, 1936—Announcement is made that the Bagley & Sewall Company has completed negotiations with officials of the Smith Paper Company, Lee, Mass., for construction of a 92-inch machine, especially adapted for the production of specialty paper. The local company expects to complete the order in several months, it was stated. The Smith concern is among the largest cigarette paper manufacturing concerns in the world. At present the Bagley & Sewall Company has about half completed another large papermaking machine which is being built for the Crossett Lumber Company, of Crossett, Ark. The machine is a 210 inch kraft paper machine and will be ready for shipment within a few months. The company also has a number of repair jobs which are keeping the workmen busy. Operations are being conducted at full time and it is understood that no further increases in the force will be made to complete the latest big order.

Japanese Paper Production Increases

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 26, 1936—Paper production in Japan during the first half of the current year reached a total of 444,000 short tons and sales 445,000 short tons, increases of 5.4 per cent and 7.6 per cent, respectively, compared with the same period last year, according to reports from Commercial Attache Frank S. Williams, Tokyo. Imports of paper increased materially, due principally to large arrivals of newsprint paper. Woodpulp imports dropped 24 per cent under those of the preceding month and 14 per cent below the same month last year. The United States supplied 55 per cent of the total woodpulp imports during June, 1936.

Estate of Mrs. Matilda Howard

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, August 24, 1936—The three young children of Mr. and Mrs. Howell Howard of this city were named beneficiaries under the will of their grandmother, Mrs. Matilda Hoffman, which was filed in the Probate court the past week.

Also named as a beneficiary was Miss Eunice Howard, daughter of Col. Maxwell Howard, of this city and Urbana, Ohio.

The Howards are largely interested in the ownership of paper mills in Dayton, Franklin and Urbana. Miss Howard is the granddaughter of Mrs. Hoffman and is now in New York.

The will provides that one-sixth of the estate is to be placed in trust with the First National bank, Cincinnati, for the Howard children, and after the death of their father is to be distributed to them. The children are Howell, Jr., Loretta and Lillian.

Miss Eunice Howard is bequeathed outright one-sixth of the estate. One-third of the property is left in trust for the children and a son, and one-third is ordered to be placed in trust for another son, from which he is to receive the net income.

No estimate has been made of the value of the Hoffman estate but it is said to be considerable. The late Herman Henry Hoffman was a widely-known Miami Valley business man and was located in Cincinnati. He was the purchaser of the W. W. White paper mills in Dayton which later became the Aetna Paper mills, which Col. Maxwell Howard and Howell Howard manage in connection with other plants.

John R. Lehman Promoted

Announcement of the appointment of John R. Lehman as assistant manager in charge of the Seybold Division organization at Dayton was recently made by the management of the Harris-Seybold-Potter Company of Cleveland.

John Lehman's promotion comes as a reward for exceptional services rendered over a period of many years. Mr. Lehman entered the machinery field in 1897. On June 1st, 1903, he joined the Seybold organization as a machinist. He was then promoted to assistant foreman, later superintendent, general superintendent and works manager. As assistant manager in charge of the Seybold operations, he is associated with Norman L. Daney, general manager of the Harris-Seybold-Potter Company, Cleveland.

Mr. Lehman has an exceptional acquaintanceship in the Graphic Arts so that his promotion has been received with enthusiasm by a host of friends who wish for him the success to which outstanding ability entitles him.

To Organize French Paper Industry

Efforts have been made in recent months to organize the French paper industry, and with some success. In this connection a law was passed for the purpose of aiding the paper pulp industry and protecting the French forests. Several decrees have also been published recently modifying the customs regime as regards wood used for the production of paper, chemical pulp, and newsprint paper.

The manufacture of paper in France is of economic interest to the country from an industrial as well as from an agricultural standpoint. At the present time, there are approximately 200 paper mills in France employing 60,000 workers, with an annual production of something like 1,200,000 metric tons, and a business turnover of 1½ billion francs.

TRIPLE TREATMENT

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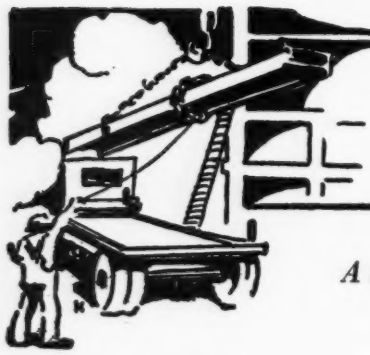

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Kalamazoo, Mich.—The Star Paper Company, commercial paper products, has asked bids on general contract for new addition to storage and distributing plant, and will begin superstructure at early date. New unit is estimated to cost close to $25,000, including equipment.

Binghamton, N. Y.—The Agfa Ansco Corporation, 29 Charles street, manufacturer of photographic papers and other processed stock, films, etc., has approved plans for large addition to plant, to be used in part for storage and distributing service. It is estimated to cost close to $200,000, including equipment. General erection contract has been let to W. E. Wark, 1608 Walnut street, Philadelphia, Pa., and work will be placed under way at once.

Laurel, Miss.—The Masonite Corporation, manufacturers of insulating board products, plastic board specialties, etc., has authorized an appropriation of $350,000 for plant expansion and betterments. Of this amount, it is proposed to use $200,000 for the erection of a new experimental plant, with equipment for developing and testing new products, as well as for improvements in processes. As recently reported in these columns, a one-story addition, 70 x 250 feet, adjoining present mill, will be given over to the production of plastic board products, and superstructure will begin at early date. A company unit has been formed, to be known as the Masonite Plastic Division, to operate the new mill. The remainder of the fund noted, $150,000, will be used for general plant improvements, including equipment installations. Company has arranged extensive financing through the sale of preferred and common stock, and appropriation will be secured from this fund, which will also provide matters of corporate finance, as well as $150,000 to carry enlarged inventory and other funds for addition to working capital. Main offices are at 111 West Washington street, Chicago, Ill.

Everett, Wash.—The Soundview Pulp Company, manufacturer of bleached sulphite pulp, has awarded general contract to the Austin Company, Dexter-Horton Building, Seattle, Wash., for superstructures for proposed new additions to mill, recently referred to in these columns, and for which work will be placed under way at once. Three new structures will be erected for acid works, pulp and storage service, and to house a filter plant, to be known as Unit No. 2. Equipment installation will provide for increase in capacity from 6,000 to 9,500 tons per month. An award for the filter equipment has been placed with the Shibley Company, Textile Tower Building, Seattle, designed for a capacity of 15,000,000 gallons per day. Another contract has been let to the Isaacson Iron Works, West Marginal Way, Seattle, for a one-story warehouse and equipment building, 80 x 160 feet, and for which superstructure will begin soon; award for foundation has been given to Paul N. Odegard, Everett. Entire project is estimated to cost about $2,000,000, with machinery and will be completed early in 1937. L. S. Burdon is general manager at mill.

Trenton, N. J.—The Central Paper Company, 418 Washington street, Newark, N. J., commercial paper products, has leased property at 102-6 South Stockton street, Trenton, consisting of a three-story building, and will occupy for new storage and distributing branch. Improvements will be made in the structure to accommodate the business.

Rochester, N. Y.—The Defender Photo Supply Company, 664 Driving Park avenue, manufacturer of processed photographic papers, etc., has approved plans for two new additions to plant, two-story, 46 x 105 feet, and one-story, 25 x 85 feet, respectively, to be known as Factory Buildings D and F. Extensions will provide for large increase in present capacity and will cost over $60,000, with equipment. A general contract for one of the buildings has been let to Frank Maggio & Brothers, 374 Augustine street, and work will begin at early date; the award for the other building will be placed soon. Smith & Stockney, 154 East avenue, are architects.

Zanesville, Ohio—The H. Bettis Company has begun work on a new one-story plant at Scio, Ohio, for which general contract was recently awarded to James Thompson, Jewett, Ohio, to be equipped for the manufacture of a line of paper boxes and containers. It will be one-story, 60 x 100 feet, estimated to cost close to $30,000, with equipment. New unit is scheduled to be ready for service in the fall.

Savannah, Ga.—The Union Bag and Paper Corporation, Woolworth Building, New York, N. Y., has concluded arrangements for a 99-year lease on tract of about 35,000 acres of timberland on the Sapelo River, Sutherland Bluff district, for pulpwood supply for new mill now in course of construction at Savannah, to be given over to production of kraft papers and containers. This makes a total of 55,000 acres of timberland leased by the company, readily accessible to the mill site, in addition to 4,000 acres of such land which has been purchased outright. Facilities for pulpwood production will be installed in certain districts of the properties designed for immediate use, with other acreage to mature in the future, when desired growth of timber has been reached.

St. Louis, Mo.—The Universal-Engel Paper Box Company, Inc., 2507 North Broadway, manufacturer of paper boxes and containers, is planning early rebuilding of portion of plant, recently destroyed by fire. Loss estimated close to $25,000, including equipment.

Chicago, Ill.—The American Tag Company, 6145 South State street, manufacturer of paper and paperboard products, has awarded general contract to George J. Boemsterboer, 11517 Parnell avenue, for new addition to paper-

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converting plant at 6135-39 South State street, to be one-story 120 x 175 feet. Superstructure will be placed under way at once. New unit will cost over $50,000, with equipment. J. J. Meldahl is company architect.

New York, N. Y.—The J. E. Linde Paper Company, 84 Beekman street, will carry out extensive improvements in floor of Port Authority Building, Fifteenth street and Eighth avenue, recently secured under lease, and expects to remove to that location, including local headquarters, early in 1937. The space acquired totals about 60,000 square feet, to be used in part for storage and distribution. Present building of the company will be placed on the market for sub-rental following removal to new quarters.

Seattle, Wash.—The Independent Paper Stock Company, 650 Seventh street, San Francisco, Cal., has plans under way for new branch building for storage and distributing service at 66 Hanford street, Seattle. It will be two-story, 120 x 130 feet, estimated to cost close to $55,000, including equipment. Ralph A. Beebee, 1976 San Pablo street, Berkeley, Cal., and Leland S. Rosener, 233 Sansome street, San Francisco, are engineers. Bids are scheduled to be asked on general contract at early date.

Chicago, Ill.—Officials of Crown Zellerbach Corporation, 343 Sansome street, San Francisco, Cal., have organized the Midland Paper Company under Illinois laws, with capital of 100 shares of stock, no par value, to take over and operate local company of same name at 652 West Randolph street, Chicago, recently acquired, as previously reported in these columns. New company will be affiliated with Crown Zellerbach organization. The incorporators include G. A. Mueller and V. G. Gendron.

New Companies

Columbus, Ohio—The Franklin Paper Service Company has been incorporated with capital of 250 shares of stock, no par value, to deal in paper products. Company will be identified with the Central Ohio Paper Company, 226 North Fifth street, Columbus. The incorporators include Walter F. Browne, Harold K. Righter and A. M. Miller, Central Ohio Paper Company, address noted.

Haverhill, Mass.—The Star Paper Company, Inc., has been chartered with capital of 250 shares of stock, no par value, to deal in paper goods of various kinds. S. Skalkeas is president; and Dimos Dimopulos, 141 Locust street, Haverhill, treasurer and representative.

Chicago, Ill.—The Van System Corporation, 3024 East Cheltenham place, has been incorporated with capital of 100 shares of stock, no par value, to deal in paper specialties and allied products. The incorporators include Emery W. Rice, Harry B. Davison and Patrick J. Brogan. Company is represented by Samuel H. Rosenthal, 127 North Dearborn street, Chicago.

Cleveland, Ohio—The Variety Paper Coating Company has been chartered with capital of 250 shares of stock, no par value, to manufacture and deal in paper specialties. The incorporators are Herman Kursh, Norman Kalman and Robert H. Kaplan, Society for Savings Building, Cleveland. Last noted is company representative.

Redemption by Western Tablet

The Western Tablet and Stationery Corporation has announced that it will purchase at 102 and interest any of its first mortgage fifteen-year 6 per cent bonds due on October 1, 1941, presented for payment prior to October 1, next. The entire issue, $300,000 outstanding, will be redeemed on that date at 102 and accrued interest at the Chase National Bank.

WORK ON COMEAU BAY MILL

(Continued from page 9)

acceptance of the idea that the price of newsprint for 1937 will be that established by the Great Northern Paper Company in announcing a price advance of $1.50 per ton over the current level of $41 per ton. The $1.50 increase will, in the majority of cases, barely take care of the indicated increase in costs, although the situation is mitigated to a degree by the rising ratio of operations.

However, from a long-term point of view events of the past few years have been definitely constructive, including a rise in the operating ratio of the Canadian industry from 50 to 90 per cent of capacity and an increase in price from $40 per ton for 1935 to $42.50 for 1937.

Reorganization Plan Lake St. John

The protective committees representing bondholders and debentureholders of Lake St. John Power and Paper Company are reported to have agreed on a plan to take care of the securities which they represent, with the next step up to the equity holders.

All of the preferred shares of the company are owned by St. Lawrence Paper Mills, while the common stock is held in the treasury of St. Lawrence Corporation, which in turn holds all of the common of St. Lawrence Paper Mills.

The plan advanced by the above noted committees of Lake St. John provides for a reduction in the interest rate on both securities; funding of the arrears on both issues and a proportion of the present equity shares in compensation for the reduction in the interest rate.

It is gathered that the bond interest rate would, under the committees' proposal, be reduced from 6½ to 5½ per cent, while the debenture rate would be cut from 6½ to 5 per cent.

Paper Industry of Japan

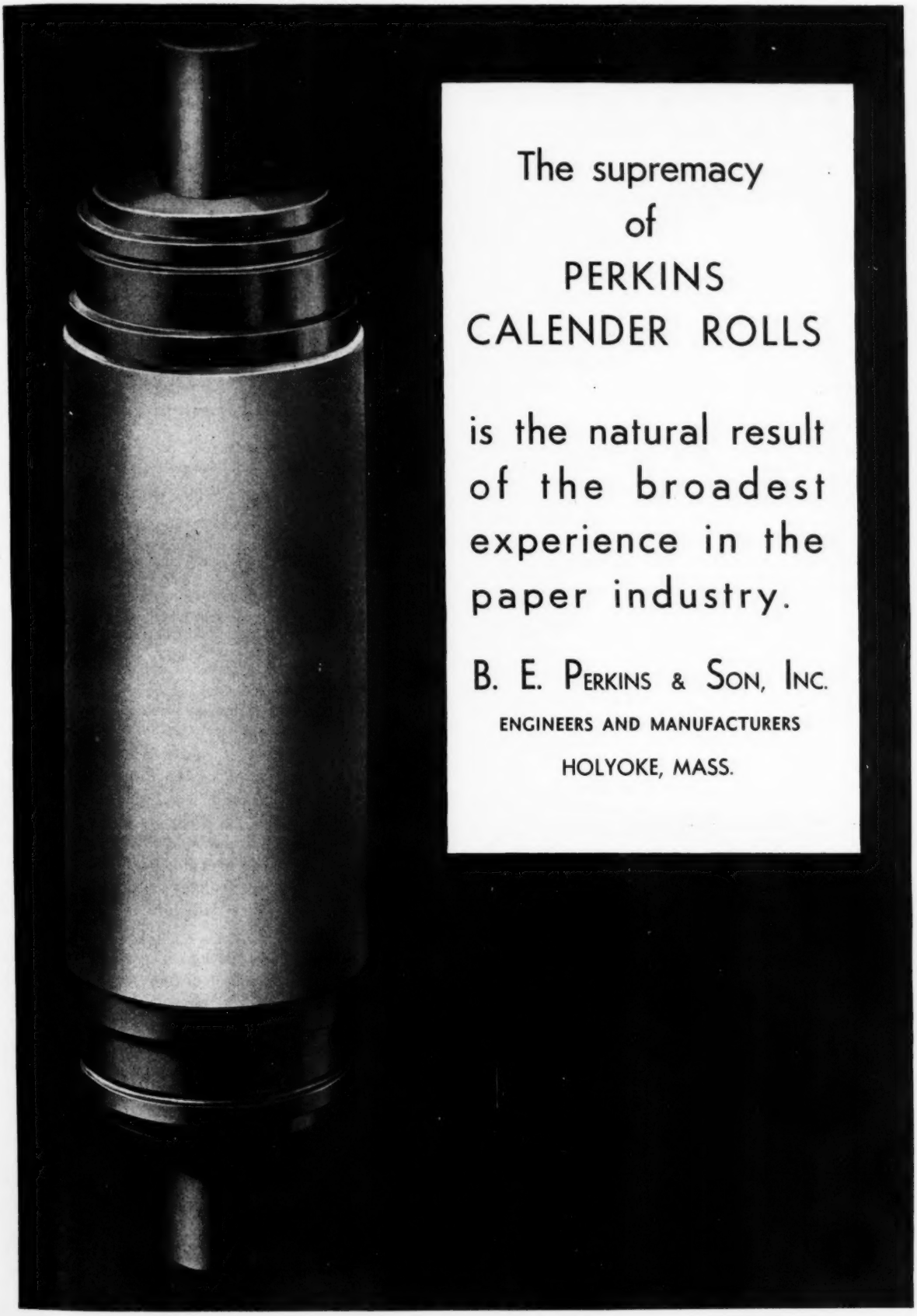
The total production of paper in Japan in 1935 amounted to 859,819 short tons, an increase of 8 per cent over 1934, according to Mr. J. A. Langley, Canadian Commercial Secretary in Tokyo. The most important item was newsprint, which accounted for 43 per cent of the total output.

Imports of paper totalled 1,674,816 cwts. in 1935 compared with 1,385,565 cwts. in 1934. According to the countries of origin during 1935, Canada led other suppliers of paper by accounting for 75 per cent of the total tonnage imported, followed by Sweden with 8.27 per cent and Norway with 3.70 per cent. Imports from Canada during this period showed an increase of 14.3 per cent. In the total value of imports Canada headed the list and accounted for 49.45 per cent of the total. When the value for 1934 is compared with that for the previous year, Canadian paper shipments showed an increase of 1,275,283 yen (21.3 per cent).

Canada is the most important source of supply of paper to Japan. In 1935 the trade was valued at 7½ million yen, representing about 15 per cent of the total imports of all commodities from the Dominion.

Model 6088V Cycle Controller

Bristol's Model 6088V Process Cycle Controller is described in bulletin No. 447 which is available upon request from the Bristol Company, Waterbury, Conn. This bulletin describes a new addition to the Bristol line of Process Cycle Controllers. The Model 6088V Controller has adjustable features which makes it suitable for use, particularly in the rubber and molded plastic industries, where variable speed controllers are required.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VOLUME OF BUSINESS FOR 1936 TO SHOW GAIN OF 20 PER CENT

Numerous indications pointing to a 1936 business volume 20 per cent greater than in the preceding year are observed by the business survey committee of the National Association of Purchasing Agents in its monthly report on industrial conditions which has just been made public.

Instead of the usual summer slump, practically all sections of this country and of Canada report improved business, rising commodity prices, greater employment and increased inventories for the last thirty days. A liberal buying policy is recommended by the committee, which holds improved business volume is to be expected this Fall and Winter regardless of political happenings.

Some bad spots are noticed, including the agricultural implement industry, which has been hard hit by drought conditions, but the committee finds Texas being helped by a good cotton crop, textile finishing plants in the East unusually busy, tourist trade in the West and North above expectations, and building volume generally improved.

"Commodity prices are reflecting the increased and sustained demand from most of the larger consumers in various lines of trade," the report continued. "Values continue to work moderately higher. While the consensus seems to be that run-away markets are not in the offing, firmer price trends are evident as indicated by strength in grains and foodstuffs, steel products, copper, scrap, cotton, rayon, boxboard and lumber. There are very few commodities showing weakening tendencies.

"Inventories have been increased to some extent over last month, due not only to anticipated price strength in many markets but also as a protection against possible labor disturbances. One regional report states 'labor situation is loaded with dynamite and anything may happen.' There seems to be sound reason for keeping inventories well filled during the next several months at least."

Credit is ample in all sections and collections are being maintained at the preceding month's levels. Employment in general has improved but reports of possible strikes are numerous, the committee added.

With reference to buying policy, the committee recommends that purchasing agents cover needs for two to six months, depending upon the commodity.

"Buying policy," the report concluded, "is dependent at this period upon the commodity under consideration, as commitments are ranging from hand-to-mouth to contracts for a year ahead.

"Markets are being followed closely in industries likely to be affected by war activities in Europe, and this is causing some concern in certain sections.

"The Robinson-Patman act apparently has made no change in buying procedures and improved business volume is looked for during the coming Fall and Winter months irrespective of political happenings. There is little evidence of any declining price movements in the next several months, other than possible temporary reactions, and a liberal buying policy in most lines of trade is recommended."

32,500 SPECIMENS IN WOOD COLLECTION OF YALE UNIVERSITY

Progress in tropical forestry and the world-wide study of woods by the Yale Forest School is the subject of a report just issued by the University. The Yale wood collections now contain over 32,500 specimens, representing more than 10,400 named species of 2,548 genera and 225 families. The additions during the last two years alone, the report stated, almost equalled the total number of specimens on hand a decade ago.

The most outstanding addition made to the collections was secured as a result of the visit of Professor Samuel J. Record to Holland. This consisted of a gift to Yale by the Commercial Museum of the Colonial Institute at Amsterdam of 2,215 Javanese wood specimens collected with herbarium material by Koorders during the years 1888-1894. This material was studied for more than 30 years by Dr. Janssonius of Holland, and the results of his work were published in six volumes. Students at Yale can now examine the actual material which is described in the text.

More attention will be given to increasing the number of preparations for microscopic study, the report said. Last year, cross, radial, and tangential sections of 973 specimens were added to the slide collections. These collections now contain slides of 5,235 specimens. Most of the slides have been received in exchange for wood samples, many of them coming from the Forest Research Institute, Federated Malay States; Imperial Forestry Institute, Oxford; Biological Laboratories, Harvard; and the botanical department of the University of Michigan.

One of Professor Record's major projects has been the study of the timbers of British Honduras. The work was begun ten years ago in cooperation with the forestry department of the Colony and with the Field Museum of Natural History. Professor Record collaborated in the au-

thorship of a volume on this subject, published this year by the museum.

For the work in timber testing, it has been found advantageous to use specimens of little known but potentially important tropical trees, as the data thus obtained are contributions to science. Professor George A. Garratt has finished a paper on the trees known in British Honduras as "Waika Chewstick." It is planned to continue this work through arrangements with logging operators in tropical America.

Other activities include the building up of the herbarium, the identification of wood samples, and the supplying of information to scientists, timber dealers, wood users, and the general public.

Grays Harbor Doubles Net Income

SAN FRANCISCO, Cal., August 22, 1936—The Grays Harbor Pulp and Paper Company more than doubled its net income the fiscal year ended April 30 as compared with the previous period. Net for this fiscal year was $527,446 against $205,787, after charges including $87,944 provision for Federal income tax against provision of $32,800 the comparative period.

In his statement to stockholders President Edward M. Mills, explains the increase as due to a number of factors. Sales volume was sufficient to keep the mill operations at practically full capacity and there was a slight price increase with larger demand for higher quality product. Depreciation provision was computed at rates recommended by the Treasury Department to the result that this fiscal year the figure was $330,860 against the previous period's $366,133 and was approximately $54,000 less than had they been computed at rates used in prior years.

Profit from operations before depreciation was $1,161,759, against the previous year period's $884,309 and other expenses net of other income were $215,469, against $279,488.

As a result of the Treasury Department survey recommended changes, retroactive to May 1, 1935, were accepted by the directors, resulting in a credit of $90,914 to earned surplus for the two years ended April 30, 1935. Other adjustments left an adjusted balance of $76,564 as of April 30, 1935, and eliminations from the balance sheet of certain intangibles totaling $49,382. Earned surplus as of April 30, 1936, was $552,465.

Current assets of $1,595,508 compared with current liabilities of $744,468. The previous year net current assets were $614,918. The statement says that since the close of the fiscal year the board of directors has authorized payment of certificates of indebtedness aggregating $79,447.

Dumouchel Paper Co. Burned

WATERBURY, Conn., August 22, 1936—Many thousand dollars worth of paper stock of all kinds was destroyed and only the outer shell of the building housing the Dumouchel Paper Company, at 61-67 Canal street remained after a two-alarm blaze, which gained much headway before firemen arrived, swept through the entire structure just after midnight on Saturday morning of last week. The paper company occupied about half the two and a half story warehouse, while the entire third floor was vacant. The origin of the blaze could not be determined.

The building, about 150 feet long and 50 feet wide, fronts on Canal street about opposite Chatfield avenue.

Production Ratio Report

These statistics are based upon paper production reports to the American Paper and Pulp Association.

COMPARATIVE MONTHLY SUMMARIES

Month	1936	1935	1934
January	76.1%	65.8%	.....
February	77.9%	70.0%	.....
March	76.0%	70.5%	.....
April	82.3%	70.0%	.....
May	81.6%	69.4%	.....
June	80.7%	72.3%	.....
July (b)	80.0%	67.8%	.....
August	.....	70.9%	.....
September (c)	.....	75.0%	59.4%
October	.....	75.6%	64.7%
November	.....	75.3%	61.7%
December (a)	.....	74.3%	62.1%
Year	.....	71.2%	.....

COMPARATIVE WEEKLY SUMMARIES

CURRENT WEEKS, 1936		CORRESPONDING WEEKS, 1935	
*August 8	80.2%	August 10	70.0%
*August 15	81.5%	August 17	70.8%

The following statistics show the number of mills reporting by ratio groups:

Ratio Limits	Number of Mills Reporting, Current Weeks: August 8, 1936	August 15, 1936
0% to 50%	83	66
51% to 100%	234	156
Total Mills Reporting	317	222

* Subject to revision until all reports are received.
These data exclude (a)—Christmas Day, (b)—Fourth of July, (c)—Labor Day.

PAPERBOARD OPERATING RATIOS

According to reports from the National Paperboard Association, per cents of operation, based on "Inch-Hours," were as follows:

1934	1935	1935	1936
Sept. 62%	Jan. 61%	July 59%	Jan. 61%
Oct. 63%	Feb. 67%	Aug. 65%	Feb. 67%
Nov. 56%	March 67%	Sept. 69%	March 68%
Dec. (a).. 53%	April 61%	Oct. 76%	April 70%
	May 61%	Nov. 70%	May 68%
	June 65%	Dec. 60%	June 68%

Week ending July 4, 1936—65%
Week ending July 11, 1936—53%
Week ending July 18, 1936—71%
Week ending July 25, 1936—70%
Week ending Aug. 1, 1936—74%
Week ending Aug. 8, 1936—71%
Week ending Aug. 15, 1936—74%

To Be Superintendent at Stevens Point

[FROM OUR REGULAR CORRESPONDENT]

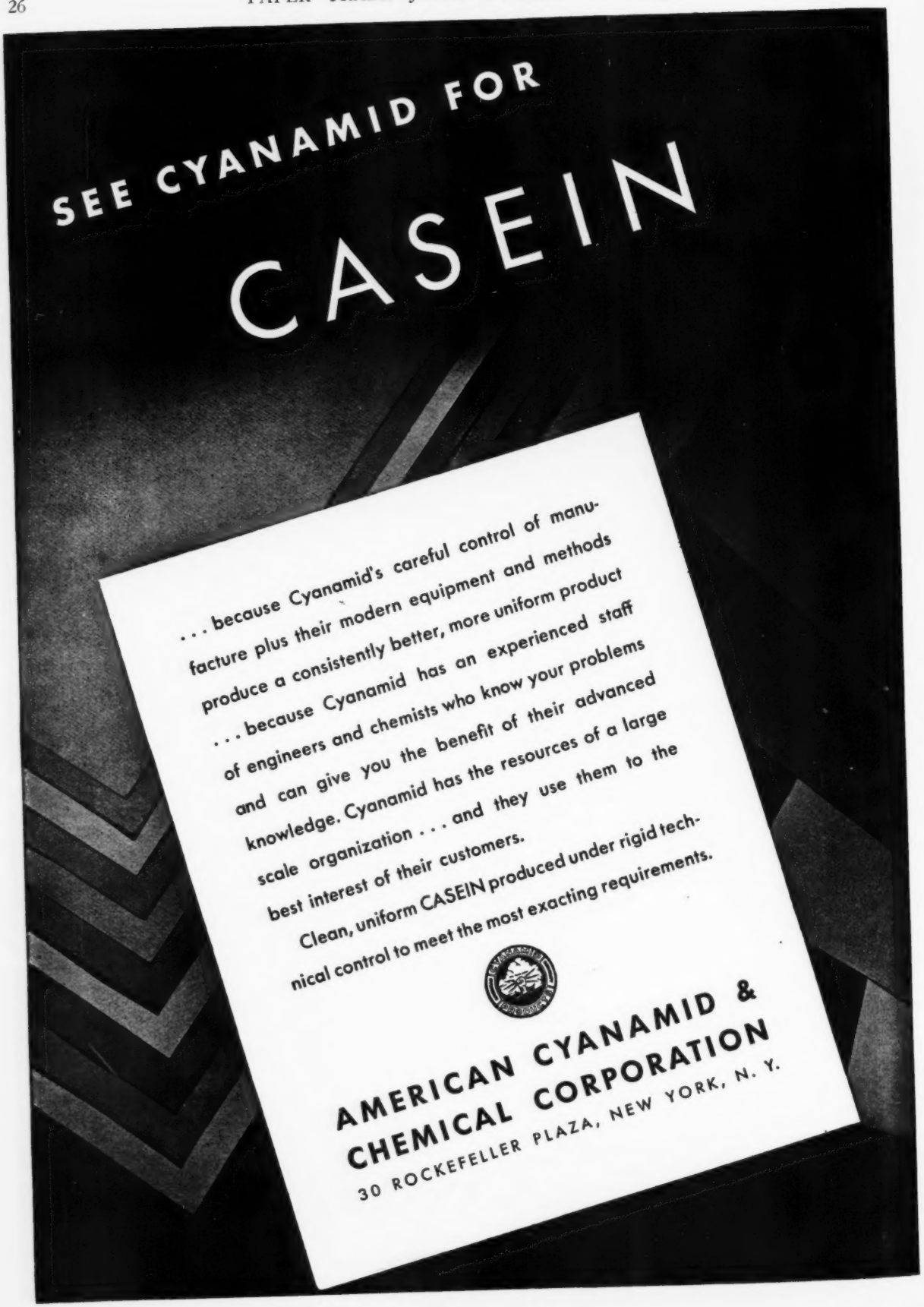
HOLYOKE, Mass., August 24, 1936—James A. Rush, former resident of Holyoke, while in the employ of the American Writing Paper Company, Inc., has been made superintendent of the Consolidated Water Power & Paper Company, of Stevens Point, Wisconsin. He began his papermaking career here, starting out with the American Writing in 1925.

Mr. Rush attended the University of Maine and received his degree from Boston University. After leaving Holyoke and the American Writing Paper Company, he became beater engineer for the Consolidated Water Power and Paper Company, in Wisconsin Rapids, Wis. He was later moved to Stevens Point, where he has been located the past three years.

F. A. Augsbury Visits Forest Preserve

[FROM OUR REGULAR CORRESPONDENT]

OGDENSBURG, N. Y., August 24, 1936—Frank A. Augsbury, head of the Algonquin Paper Mills, left during the past week by train for Mount Joli, P. Q., and from there motored to Mount Louis. The company maintains an extensive forest preserve at the latter place where it obtains its pulp wood needs. Mr. Augsbury expects to return within two weeks.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Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Measurement of Gelatinization of Wood and Pulp By Water Retention Under Pressure*

By Joseph L. McCarthy[1] and Edwin C. Jahn[2]

In connection with research on the gelatinization of pulp and of wood by beating in a rod mill for the preparation of dense strong materials it was desirable to obtain a numerical value for the relative degree of gelatinization.

A survey of the literature indicated that most methods described were difficult to carry out, were of doubtful accuracy, or did not actually measure the degree of hydration or gelatinization only, but rather a combination of changes. The degree of beating and hydration of paper stock is commonly determined by some measure of the drainage properties of fibers by a freeness or slowness tester, or a rate of flow tester. Determination of the tensile and bursting strength of standard sheets made from the pulp also give an indication of the degree of hydration. These tests, however, measure the combined effects of hydration and changes in fiber size, fibrillation and accumulation of fiber debris.

Attempts to measure gelatinization or the colloidal changes it represents include a determination of the amount of alkali absorbed by the cellulose from an alcoholic solution, *(2)* a measure of the increased degree of alkali solubility, *(6)* the sedimentation method, *(5)* a measure of the degree of surface adsorption of calcium carbonate *(7)* by cellulose, determining the differences in drainage times of stock according to standard procedure and similarly after boiling in water for an hour, *(3, 9)* measurement of the density or volume of contraction of a standard pressed pulp cake, *(1)* and measurement of the imbibed water retained in pulp pressed under standardized conditions. *(8, 9)*

For measuring a wide range in degrees of gelatinization the latter method seemed promising. Strachan *(8)* states that pulp pressed at pressures above 10 pounds per square inch loses its capillary water and, by selecting standard conditions, it is possible to obtain a direct measure of the water of hydration. Bell *(1)* did not find this method satisfactory since at 200 pounds pressure per square inch it took 14 days for equilibrium to be reached and furthermore he found the differences in water retention between beaten and unbeaten pulps to be too small.

The suitability of Strachan's water retention method for measuring gelatinization is investigated further in this paper.

Gelatinization in the Rod Mill

Commercial bleached sulphate pulp and air-dry Idaho white pine *(Pinus monticola)* planer shavings and sawdust disintegrated in a hammer mill and screened to 20-60 mesh size were used. Gelatinization was obtained by beating for varying periods of time in a stainless steel rod mill (12 inches inside diameter and 24 inches inside length) revolving at 30 r.p.m. and containing 50 stainless steel rods, each seven-eighths of an inch in diameter, 23 inches long and weighing 1800 grams. The various beating conditions used are indicated below.

Pulp: A—4 per cent consistency in water, total time 8 hours.
B—4 per cent consistency in 1 per cent NaOH, total time 8 hours.
Sawdust: C—Same conditions as A.
D—Same conditions as B.
E—5.9 to 4 per cent consistency in 1.43 per cent NaOH for a total time of 48 hours, ratio of rod weight to wood constant at 150.
F—8 per cent consistency in 0.1 per cent NaOH, 48 hours.
G—8 per cent consistency in 1.0 per cent NaOH, 48 hours.

Letters appearing in the tables and figures refer to the beating conditions listed above. A numeral following the letter indicates the time of beating in hours.

Measurement of the Degree of Gelatinization

Attempts were made to determine the degree of gelatinization by alkali solubility, alkali absorption, rate of settling, microscopic observation, and slowness, all with unsatisfactory results.

Alkali solubility was determined by refluxing 4 grams of material in 100 cubic centimeters of 7.14 per cent sodium hydroxide solution for 3 hours. Alkali absorption was measured according to the method of Briggs *(2)* using 0.426 N sodium hydroxide in 95 per cent ethyl alcohol. Slowness was determined by measuring the rate of drainage in a vertical glass cylinder slowness tester of the type described by Richter *(4)*.

In the case of sawdust no increase in solubility in alkali with increased beating was observed. There is a general increase in the ability of sawdust to absorb alkali after increased time of beating but the differences are small and the results somewhat erratic. The slowness test gives fair results for the smaller degrees of gelatinization, but when the beating effects become drastic the rate of drainage becomes exceedingly slow and the errors increase as

* Presented at the 4th Annual Joint Convention of the Pacific Section of the Technical Association of the Pulp and Paper Industry and the Pacific Coast Division of the American Pulp and Paper Mill Superintendents' Association, Longview, Washington, June 5-6, 1936.
[1] Potlatch Forests Fellow, School of Forestry, University of Idaho, Moscow, Idaho.
[2] Member TAPPI, Professor of Forestry, University of Idaho, Moscow, Idaho.

TABLE I
EFFECT OF OVEN-DRY WEIGHT OF SAMPLE ON WATER RETENTION UNDER PRESSURE

Sample	Oven Dry Sample Weight in Grams	Water Retention in Per cent
Unbeaten Sawdust (C-0).....	1.0009	20.5
	2.0110	20.3
	2.0742	20.4
	2.9342	21.2
Sawdust Beaten 4 hours in water (C-4).....	1.0696	24.5
	1.9165	24.7
	2.0610	25.0
	2.2532	26.2
	2.7774	27.7
	3.3523	28.0

indicated by the difficulty in getting check results. Results obtained by these methods are compared in Table II and Fig. 1.

Since none of the above methods gave wholly satisfactory results a study was made of Strachan's water retention under pressure principle *(8)*. To overcome Bell's *(1)* criticism of the length of time required to reach an equilibrium between the removal of capillary water and the retention of imbibed water a pressure 50 times greater was employed, namely 10,000 pounds per square inch.

PROCEDURE.

A study of the factors involved finally led to the following standardized procedure. All samples were first brought to the moisture content of 60 (±2) per cent by sucking off excess water on a Büchner funnel, squeezing by hand and then pressing between felt pads in a 4 square inch mold at 100 pounds per square inch for five minutes. The wet cake was disintegrated, bottled and its moisture determined. On the basis of the determined moisture content, sufficient moist sample was weighed out to amount to two grams oven dry equivalent. This material was introduced into a mold one square inch in cross-sectional area with three moist felts above and two below the sample to prevent expressed water running back and wetting the sample when the pressure was released. The mold was placed in a hydraulic press and the sample subjected to a pressure of 10,000 pounds per square inch for 20 minutes. The sample was immediately removed, placed in a weighing bottle and analyzed for moisture retained.

FACTORS AFFECTING TEST.

The time of pressing must be long enough to express most of the capillary water, yet not long enough to remove much imbibed water. The degree of gelatinization appears to have an effect on the rate of movement of water, although particle size has comparatively little effect. Tests carried out on beaten sawdust indicated that with increased time of pressing the water retained approached a constant after about 20 minutes. For example, sawdust beaten 4 hours in water gave the following per cent water retentions with varying time: 5 minutes, 27.4 per cent; 20 minutes, 24.9 per cent; 40 minutes, 24.8 per cent; 60 minutes, 24.0 per cent. With pulp the time for equilibrium is not so well limited to a narrow range as with sawdust and increased gelatinization apparently increases the equilibirium time. However, 20 minutes was selected in order to standardize conditions. Particle size has a definite but small effect on the water retained under the conditions used. The per cent water retained by unbeaten sawdust of varying particle sizes is indicated by the following figures: 20-60 mesh, 20.4 per cent; 60-80 mesh, 21.8 per cent; 100-200 mesh, 22.3 per cent; 100 mesh and smaller, 22.4 per cent; 325 mesh and smaller, 22.9 per cent. Material of 60-100 mesh size beaten for one hour in alkali had 26.0 per cent water retention, illustrating the very much greater effect of even very mild gelatinization over the maximum effect of a wide range in particle size.

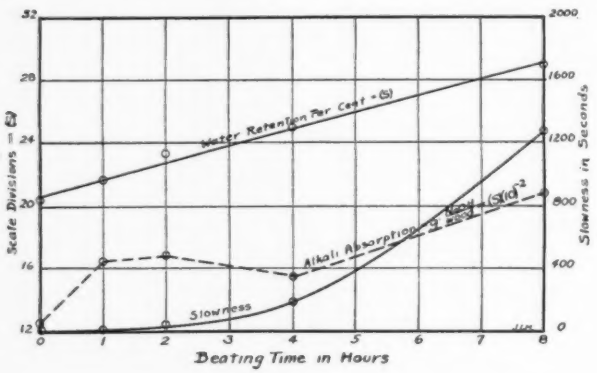
Water Retention Per Cent - (S)
Alkali Absorption - g NaOH/g wood
Slowness
Scale Divisions = (S)
Slowness in Seconds
Beating Time in Hours

FIG. 1
Determination of gelatinization by different methods.

A definite range of particle size (60-100 mesh) was isolated by wet screening from sawdust beaten in one per cent sodium hydroxide solution for different periods of time. The per cent water retained by this constant particle size is as follows: unbeaten, 21.8 per cent; beaten 1 hour, 26.0 per cent; beaten 2 hours, 26.5 per cent; beaten 4 hours, 28.8 per cent. In this case, by definitely eliminating any possible particle size effect, it is shown that increased gelatinization by beating may be measured by per cent water retention.

The per cent of original water in the sample before pressing within the range examined has a small effect on the final per cent water retained under pressure as the following figures show: 68.4 per cent initial; 29.5 per cent retained; 59.2 per cent initial, 29.0 per cent retained; 52.8 per cent initial, 29.0 per cent retained; 42.7 per cent initial, 27.1 per cent retained.

The effect of the size of the sample in oven-dry equivalent weight on the per cent water retention is illustrated in Table I. As expected, with increasing size (thickness) of sample, other conditions remaining constant, the per cent water retention is greater.

The studies on the influence of the above variables on the per cent water retention shows the necessity of following a standardized procedure.

CORRELATION OF WATER RETENTION WITH LINEAR CONTRACTION.

It is well known that the shrinkage of wood is due to loss of imbibed water from within the cell wall tissues and not to loss of free or capillary water. It is reasonable to believe that in a cake of pressed gelatinized wood or pulp from which free water had been expressed that the per cent contraction on drying would be an index of the amount of imbibed water between the micellae and hence of the degree of gelatinization. Bell's *(1)* method of measuring hydration by comparing the densities or volume contraction of dried pressed cakes involves the same principle.

Correlation of shrinkage with per cent water retention

TABLE II
DETERMINATION OF GELATINIZATION BY DIFFERENT METHODS

Sawdust beaten in water—(C)

Time of Beating (Hours)	Water Retention (Per cent)	Slowness (Seconds)	Linear Contraction (Per cent)	NaOH Absorption (g NaOH/g wood)	Alkali Solubility (Per cent)
0	20.4	9.0	...	0.126	16.7 (Corrected)*
1	21.7	15	...	0.165	...
2	23.3	43	...	0.168	...
4	24.9	187	0.35	0.154	...
8	29.0	1270	1.92	0.208	16.2

* Water solubility of C-O is 3.12 per cent under same treatment as in rod mill, except without the beating. Total solubility is 19.8 per cent.

TABLE III
DEGREE OF GELATINIZATION OF SAMPLES BY WATER RETENTION UNDER PRESSURE AND BY SLOWNESS

Sample Beating Time (Hours)	Pulp in Water—A		Pulp in 1 per cent NaOH—B		Sawdust in Water—C		Sawdust in 1 per cent NaOH—D	
	Water Retention (Per cent)	Slowness (Seconds)	Water Retention (Per cent)	Slowness (Seconds)	Water Retention (Per cent)	Slowness (Seconds)	Water Retention (Per cent)	Slowness (Seconds)
0	23.2	44	23.2	44	20.4	9.0	20.4	9.0
1	27.1	93	30.2	580	21.7	15	26.4	23
2	30.3	280	35.6	3300	23.3	43	28.1	74
4	33.3	6000	36.7	11000	24.9	187	30.4	520
8	36.5	18000	34.9	14000	29.0	1270	34.5	3300

should indicate the value of the latter as a means for measuring gelatinization.

To determine this, discs were pressed under gradually increasing pressures for eight minutes up to 12,000 pounds per square inch which pressure was maintained for 12 minutes. A mold four inches in cross-sectional area and eight grams (dry equivalent) of sample were used. After removal from the mold the discs were allowed to air-dry between felts under slight static pressure until they reached constant weight. Since the same dry weight was used for each disc, only the linear diameter contraction was measured and the per cent diameter contraction calculated.

When the figures for per cent linear contraction of pressed sawdust discs of varying degrees of gelatinization are plotted against the per cent water retention a straight line is obtained. Arrangement of the values for per cent water retention in ascending order, regardless of the time or conditions of beating, gives direct correlation with per cent linear contraction as indicated in Fig. 4. This relationship is evidence that the per cent water retention as determined in this study is a direct measure of gelatinization.

Measurement of linear or volume contraction is also a good index of gelatinization but it is too long and slow a method for practical purposes.

Measurement of Progress of Gelatinization During Beating

The progress of gelatinization with increased time of beating can be readily followed by measurement of the per cent water retention under pressure as shown in Figs. 2 and 3 and Table III. The points on the curves are easily reproduced giving good check results.

Acceleration of the rate of gelatinization by beating in alkaline solution is readily shown by the curves. The marked effect of small differences in the strength of the alkaline media are well shown by the results at 48 hours beating in Fig. 3. The dropping off of the curve for beating pulp in alkaline solution between 4 and 8 hours of drastic beating is difficult to explain until further research is done. Beating sawdust in alkaline solution for 48 hours gave a continuously rising curve as indicated in Fig. 3. It is interesting to note that the curves for beating sawdust both have the same slope after the first two hours, the acceleration of gelatinization by the alkali taking place in the early stages of beating.

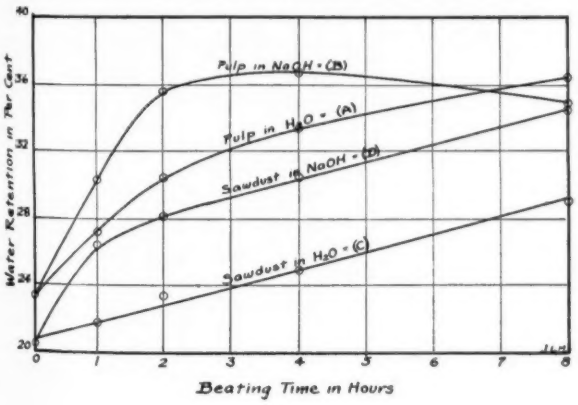

FIG. 2
Water retention of beaten pulp and wood.

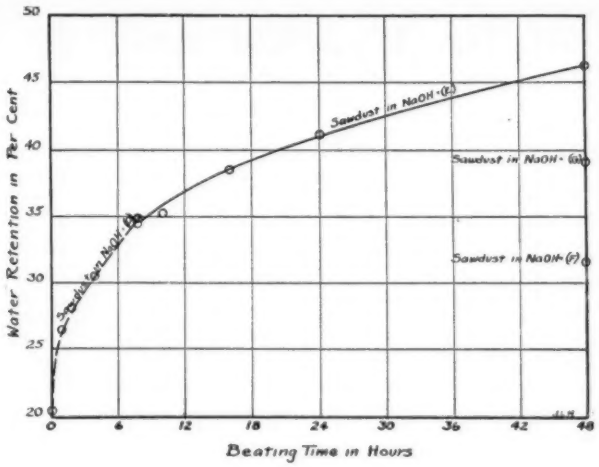

FIG. 3
Water retention of beaten wood.

Literature Cited

(1) Bell, J. H. B., *J. Soc. Chem. Ind.*, 52, no. 18, T119 (May 5, 1933).
(2) Briggs, J. F., *Chemiker Zeitung*, 34, 455 (1910).
(3) Le Compte, T. R., *Paper Trade J.*, 93, no. 14, 42 (Oct. 1, 1931).
(4) Richter, G. A., *Ind. Engr. Chem.* 23, 266 (1931).
(5) Schorger, A. W., *Ind. Engr. Chem.*, 15, 812 (1923).
(6) Schwalbe, C. G., and Sieber, Rudolf, *Die Chemische Betriebskontrolle in der Zellstoff-und Papier-Industrie*, page 336, Julius Springer, Berlin, 1931.
(7) Strachan, James, *Proc. Tech. Sec. P. M. A. Gr. Br. and Ireland*, 14, 447 (1934).
(8) Strachan, James, *Proc. Tech Sec. P. M. A. Gr. Br. and Ireland*, 6, part 2 (March, 1926).
(9) Tech. Association of the Pulp and Paper Industry, Standards, T 205 m (March 24, 1932).

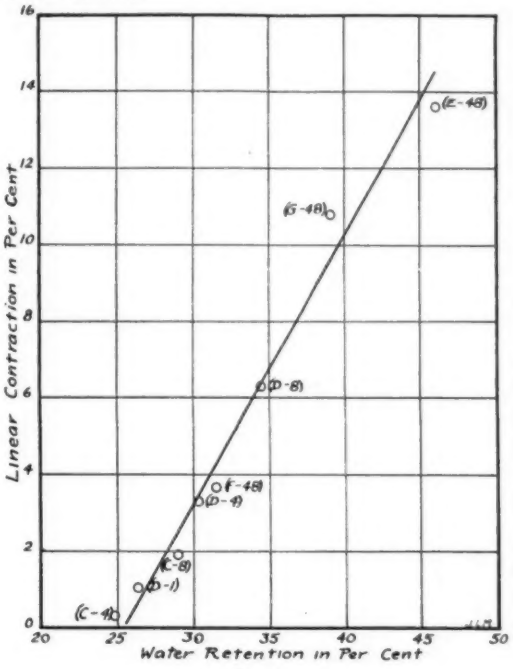

FIG. 4
Linear contraction and water retention correlation.

The Colloid Mill In The Paper Industry*

By H. L. Bullock[1]

As this is a meeting of practical plant and laboratory men, primarily interested in production results and methods of obtaining them, only one reference will be made to a theoretical work on colloids.

In his book on "Colloidal Chemistry," Jerome Alexander tells how one colloid mill was demonstrated before a body of engineers in the early days of colloid mill development. Milk powder was processed with water; an oil was emulsified with water with the aid of a soap; and a red pigment was dispersed in a liquid, from which it subsequently settled out. He tells us that after the applause had died down, one member of the body had the temerity to point out that the milk powder could have been stirred into the water with a spoon; that the oil could have been emulsified by stirring in a pail with a stick; and that the red pigment had already precipitated!

Probably the colloid mill demonstrator was a salesman new to his job, and promptly retired in confusion, while another "black mark" was entered against colloid mills, to add to the many others which this class of equipment had received during the years of pioneering. It seems too bad that the demonstrator did not stand his ground, for the argument advanced by the member from the floor, while perhaps worthy of a politician, was just as vulnerable to common sense consideration. We must remember that there are degrees of perfection in all operations, and that mass production calls for special equipment capable of producing absolutely uniform results. It is perfectly true that on your way home from this meeting you can walk all the way, but you will prefer a Pullman car or a plane; at your plant you can fill a water tank with a pail, but most engineers will prefer a centrifugal pump; and while it is true that, in the test mentioned, the red pigment had quickly settled out under the influence of gravity, it was also true that the pigment had been completely deflocculated in passing through the mill and that each particle was surrounded with a protecting film which would allow complete dispersion when the time arrived for its use.

Having elected to avoid theory in favor of practical results, it is well to forestall theoretical criticism by admitting at the outset that, in most practical production work, the expression "colloid mill" is, theoretically, a misnomer. The pastes and dispersions produced by colloid mills belong in the field of coarse suspensions and the globules in the emulsions will vary in size according to the mill setting and the ingredients used. In this connection, it is well to point out that, if true colloids were produced, they would have very little practical value to the paper maker because of their low unit concentration of dispersed material.

Historically, the colloid mill was an English development. The pioneer was the Premier liquid mill, developed in England at about the same time that the Plausen attrition-type mill was developed in Germany. At the time of this development, that is, in 1921, the writer was working as a junior engineer at the Celluloid Corporation plant in Newark, N. J., and was fortunate in having charge of the setting-up and testing of a Premier mill which had been imported from England, and, a Plausen mill brought in from Germany.

This first 5 inch liquid mill was a simple, vertical unit on a round base and was driven by a quarter-turn belt from an ordinary 1800 r.p.m., horizontal motor, set upon a separate base some twelve or fifteen feet away. A large pulley on the motor gave a 4.5:1 step-up in speed, or a mill speed of about 7500 r.p.m. under load.

This first mill was used in an effort to grind calcium sulphate and carbonate, and needless to say, the mill in that stage of development was not suited for the task.

The patents covering the Premier mill were purchased by the Nester Brothers of Geneva, N. Y., at about this time and the Premier Mill Corporation was then formed to develop and manufacture the mill in this country.

Types of Colloid Mills

From this simple beginning have grown up the various schools of colloid mill design. One school of designers, probably influenced by the design of the jordan engine, has specialized on horizontal shaft construction, using a fluted cone rotor and stator; another school, drawing on the flat stone mill construction, developed the flat plate type mill, with horizontal shaft construction and with either one or both plates rotating; a third manufacturer combined the horizontal construction with the smooth rotor and stator of the Premier patents; while a fourth designer has utilized a fluted rotor and stator in a vertical mill.

The general purpose of a colloid mill is to make fine particles finer and not to grind coarse material to commercial grades, such as 200- or 300-mesh. Therefore, except in the case of soft, pasty or gelatinous materials, or materials which can be dispersed in a molten state, the original solid material must usually be presented to the mill in 80- or minus 80-mesh size. An exception to this rule is furnished by fibrous materials which are ground in a carborundum mill, where pieces up to 3 or 4-mesh can be fed directly into the mill.

The colloid mill is not a cure-all or a miracle machine. It is a precision machine which permits one to do certain things, always within certain limits, determined by a proper amount of experimental work which cannot be economically or efficiently done in any other way. One of its important virtues lies in its ability to produce absolutely uniform results, quickly and economically. Its attractiveness as a production unit lies in its simple construction; in its small size; and in the long life of its parts, due to the unique principle of action.

As the Premier colloid mill is probably the most simple in construction, it being a machine with only one moving part, without pumps or circulating features and having no flutes or grooves in either the rotor or stator, it will serve very well as an example for explaining the general mill action.

Principle of Action in Premier Mill

The principle of action of the Premier colloid mill has been designated as "hydraulic shear." A smooth, conical rotor element rotates coaxially in a smooth, hollow, conical stator. The effective working face of the rotor is about 1¼ inches wide, and the clearance between the surfaces can be accurately adjusted from 0.001 to 0.020 inches or more. The nature of the material being processed governs this clearance and also the selection of the proper peripheral speed, speeds from 4,450 to 18,000 feet per minute being used.

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* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Waldorf-Astoria Hotel, New York, N. Y., Feb. 17 to 21, 1936.

[1] Premier Mill Corporation, New York, N. Y.

The material, fed into the mill in liquid or paste form, comes in contact with the rotor, and the centrifugal force developed forces the material into and through the small annular clearance between the rotor and the stator. In this clearance, we can picture at least three thin films of material. The material in contact with the stator will endeavor to remain stationary; that in contact with the rotor will try to move as fast as the rotor; and between these two there will be a working film, which will be literally tearing itself apart. From this consideration of the primary action of the mill, it will be evident that the mill clearance, the viscosity of the liquid vehicle and the adhesion of the material to the surfaces of the rotor and stator are directly concerned in the results obtained in any particular application. Judicious variation of the mill clearance, and, where possible, of the viscosity or nature of the vehicle, allow the achievement of many unusual results.

A very important, practical result of this principle of hydraulic shear is the long life of the rotor and stator. Most of the work is done by the material working on itself, and with the rotor and stator made of an alloy such as "Stellite," even in the case of hard and abrasive pigments, the wear is exceedingly small. In fact, regrinding of the working surfaces is seldom necessary for less than eighteen months' service.

The Premier mills are of two general types, liquid and paste.

In the liquid mill the feed is from the bottom of the rotor, either by gravity from a tank or by pump. The general construction is as shown in Fig. 1, which shows a partial cross-section of a belt-driven unit; Fig. 2 shows a direct-connected unit of larger size. The material being processed follows the arrows through the feed "C" into the mixing chamber, where the rotor "A" impels the material through the clearance between the rotor "A" and the stator "B." The material then discharges through the spillways "D."

All paste type Premier mills have the feed from the top and the processed material is delivered from a steep, enameled spillway, which may be double, as shown in the cross-section of Fig. 3, or single, as shown in Fig. 4.

Jacketed construction is used in all Premier mills so that high melting point materials may be kept fluid by heating, or materials sensitive to heat may be cooled during processing.

Colloid Mill Applications

In the paper industry, the colloid mill has many important applications, in that it can be used to produce emulsions, dispersions, and for the grinding of coating materials and pigments.

Many paper mills have been quick to develop these uses, and at least twenty paper companies are already using colloid equipment. During the past year, this interest has greatly increased, especially in the study of the action of colloid mills on filler and coating clays.

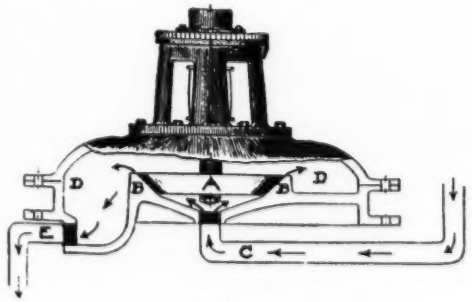


FIG. 1

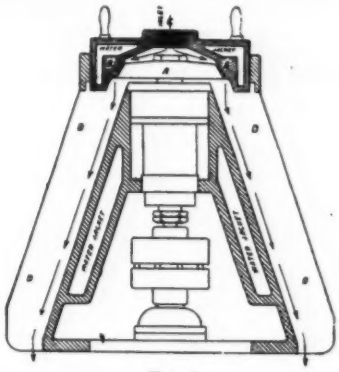


FIG. 3

Information on results obtained by individual companies is very limited or is of a confidential nature, and therefore, it is necessary to confine ourselves to the consideration of proven accomplishments in various operations common to the paper, leather, rubber and textile industries.

Oil, wax, resin, asphalt, casein, and pyroxylin emulsions can be produced in a wide variation of concentrations with a minimum of stabilizer. Production will vary from 90 gallons per hour for the 3 inch mill with 1½ h.p. motor, to 3700 gallons per hour for the 20 inch mill fitted with 100 h.p. motor, and will vary from 30 to 54 gallons per horsepower-hour for ordinary emulsions.

Figs. 5 and 6 show microphotographs of an emulsion, before and after processing through the mill, and clearly show the uniformity of the mill product.

Proper manipulation allows emulsions of either the oil-in-water type, or the water-in-oil type, to be made, and these emulsions range from thin, free-flowing liquids, to heavy pastes of the consistency of cold cream. An interesting emulsion is one of 90 per cent "Lindol" in 10 per cent water. This extreme spreading of the water-phase produces a thick, pure white paste which can be diluted down to practically any concentration.

Using a recently patented pressure process, it is possible

FIG. 2

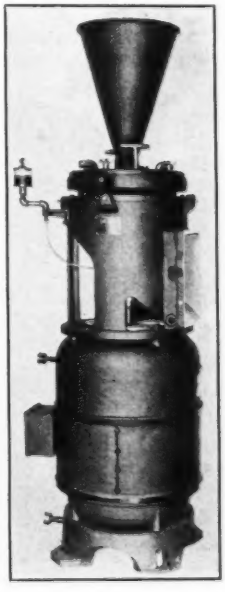


FIG. 4

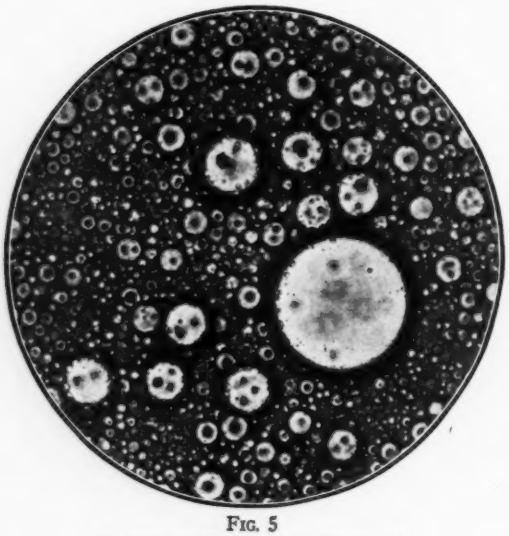


FIG. 5
Ordinary emulsion (1000 × Diameters).

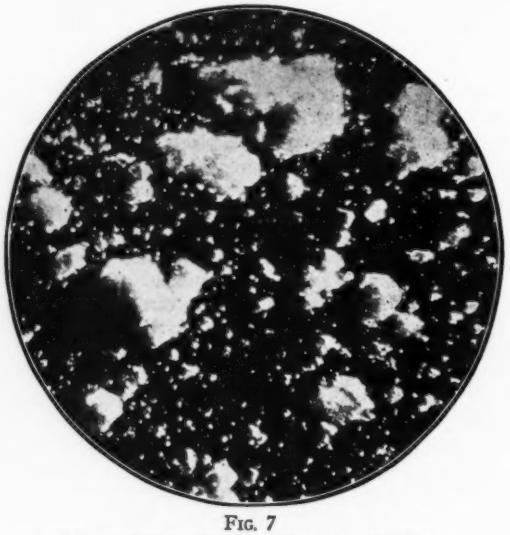


FIG. 7
Pigment before processing (1000 × diameters).

to produce water emulsions and dispersions of waxes and resins having melting points well above 100 deg. C. and to do this with the pure material, without previously dissolving it in some solvent. Colloidal sulphur produced in this way has the white color of the sulphur molecule, and has a particle size under ¼ micron.

Volumes might be written about the formation of various emulsions with colloid equipment, but in the absence of such a written record, prospective users can obtain most satisfactory and speedy results by processing samples in the manufacturer's laboratory.

The paste type mills are used to disperse and grind pigments, to disperse clays and to hydrate various solids. These mills are made in 3, 6, 8, 10 and 12 inch sizes and give productions ranging from 5 to 400 gallons per hour; dispersions of very soft materials may go as high as 800 gallons per hour. Production will vary from a low of 3 gallons per horsepower-hour for heavy hard paste in oil, up to 50 gallons per horsepower-hour for a light water paste. Figures 7 and 8 show a pigment before and after processing and indicate the extremely fine results which can be obtained.

If certain soft solids are suspended in a liquid and passed through the proper mill, they will be disintegrated to at least their original formative particle size. To obtain the benefit of this disintegration, it is necessary to incorporate a protective colloid in the vehicle. Otherwise, as is well known, particles ground beyond a certain limit will quickly coalesce again and it will be thought that the mill produced no results of advantage. The proper selection of the protective colloid is an important matter, as in one instance it has been shown that gelatine, for instance, is some 600 times as effective as dextrine in avoiding coalescence of a metallic colloid.

Due to the extreme development of surface while this disintegration is in progress, considerable hydration will take place, if water is the vehicle and the material is subject to hydration. Thus, in the case of aluminum oxide, the suspension of the powder develops gelatinous characteristics in one pass through the mill.

In all grinding of pigment and dye pastes the solid material should be ground in as concentrated a form as possible, and in a vehicle having as high a viscosity as is con-

FIG. 6
Same emulsion as in Fig. 5 put through Colloid Mill. (1000 × Diameters).

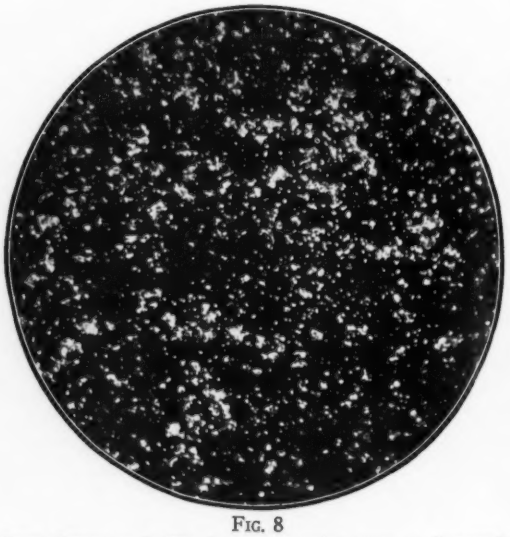


FIG. 8
Same pigment as in Fig. 7 after processing (1000 × diameters).

sistent with the use of the material and the feeding of the mill. After the maximum grinding and dispersing action has been obtained in this way, the paste can be dispersed in the rest of the vehicle, either in an ordinary mixer, or by reprocessing in the mill.

The growing interest in titanium whites and their coverage capacity makes the results obtained in the silk printing industry of special interest. The introduction of these white pigments to silk printing made it imperative that better grinding methods be used. Grinding in the colloid mill produced brilliant whites which completely covered the textile base and eventually led to the use of from forty to fifty mills for this purpose by almost as many individual concerns.

From the grinding of white pastes the application of the mill to the color pastes was a natural step, and better color development and freedom from spottiness followed. Also, it was found that straining the printing pastes could be avoided, as the small annular clearance effectively strained the material and insured freedom from "snaps" and scratches on the printing rolls.

Natural latex and processed latex compounds of the "Lotol" type are becoming important to paper makers, and the colloid mill can be of great value in compounding these substances. One large company has found greater penetration and strength to be a direct result of colloid mill processing. Nine installations on which records are available show improvement in stability and economy in ingredients.

Dispersed rubber work is usually done in three steps; first, the latex mixed with from 1½ to 2 per cent of stabilizer is passed through the mill at a clearance of 0.005 to 0.006 inch. The pigment and filler are then mixed with enough water to form a paste and are passed through the mill at a clearance of 0.002 inch. As a last step, the pigment paste and stabilized latex are mixed together and passed through at a clearance of from 0.005 to 0.006 inch. Successful additions are being commercially made in the following proportions: sulphur, 2 to 3 per cent; Clay, 5 per cent; lithophone, from 10 per cent up to two parts lithophone to one of rubber; whiting, fifteen per cent; carbon black, 20 to 40 per cent; and accelerator, 0.5 to 1.0 per cent.

While there is not a great fund of coordinated knowledge available covering the use of the colloid mill in the paper industry, colloid mill manufacturers are in a position to supply valuable information on specific problems through their work in industries where the mill has been in use for a long period. The paper coating trade is interested in uniformity of product, efficient coverage, freedom from streaks or spots, maximum color development, and economy of chemical ingredients. These same considerations have always been of primary importance to the textile trade, the artificial leather trade, the rubber sheeting industry and to the leather industry. These latter industries have turned to the colloid mill for the solution of their problems and a great number of successful installations point to the success of their efforts.

Indications now point to an increasing interest in the use of the colloid mill by the paper industry and we should expect rapid results to be obtained because the accumulated knowledge covering the solution of similar problems in other trades will be effectively utilized. In this respect, the ground work has been done for the paper coating trade, and the leading colloid mill manufacturers, with their modern laboratory equipment, stand ready to cooperate on other specific and related problems.

Fibrous Raw Materials Developments*

By John Traquair[1]

The United States has been, and is, the World's greatest paper market, consuming nearly as much paper as all the rest of the World combined; hence the supply of raw materials is of primary importance.

Our Wood Supplies

The previous reports of the Fibrous Raw Materials Committee have dealt mainly with materials other than wood, but as wood comprises 85 per cent of the fibrous raw materials used in paper-making, it was decided that the report for 1935 would deal with our wood supplies.

It is generally recognized that "although pulp can be produced from many fibrous materials no source of cellulose has yet been discovered which, either in suitability for most types of paper pulp or in cost per unit weight, challenges the supremacy of wood—in short, wood is the basic raw material for paper pulp." Copeland Report. *(1)*

Considerable data has been collected over the last few years, but when *this* report came to be written it was realized that the recent reports of the Department of Agriculture and others had so completely covered the field that some notes and a bibliography of the various publications would be of most permanent value to the industry.

The report of the Forest Service on the Forest problem of the United States, Senate Document No. 12, *(1)* published in two volumes—March, 1933, in response to a Senate resolution submitted by Mr. Copeland and generally referred to as the Copeland report, is a most comprehensive document running into 1651 pages of printed matter—a report so gigantic and complete that no abstract would adequately convey the information it contains. The main recommendations are, *(1)* "a large extension of public ownership of Forest lands, and *(2)* more intensive management of all publicly owned lands, as the only assured means of obtaining anything approaching a satisfactory solution of the forest products problem."

In July, 1935 there was published Senate Document No. 115 on "National Pulp and Paper Requirements in Relation to Forest Conservation." *(2)*. This report is more condensed, consisting of 74 pages of printed matter. It was largely prepared by C. E. Curran, Forest Products Laboratory; C. E. Behre, Director of the Northeast Forest Experimental Station, with the cooperation of C. W. Boyce, Executive Secretary of the American Pulp and Paper Association. This report was made as the result of Senate resolution 205 by Senator Frederick Hale of Maine. The report covers the subject thoroughly; it shows that out of a total paper and board consumption of 10.8 million tons in 1933 about 53 per cent is obtained from foreign sources as newsprint, wood pulp and pulp wood, and that 30 per cent of all wood pulp used is imported.

* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Waldorf-Astoria Hotel, New York, February 17-20, 1936.

[1] Chairman TAPPI Raw Materials Division, Mead Corporation, Chillicothe, Ohio.

In this connection reference must be made to a publication by the United States Pulp Producers Association entitled "World Wood Pulp Statistics 1925-1935". *(3)*. This was published in February, 1936, and gives a complete summary of wood pulp production under the various grades, and also imports and exports of these grades showing both tonnage and values in dollars. This report also again so completely covers the field that reference to it is all that is necessary.

Regional Shifts Continue

We are still witnessing regional shifts in the paper industry. At present it is towards the South and the Pacific Northwest as these are the only regions possessing untouched wood resources. Here the new wood pulp mills are being built and will be built. In fact, regional competition has developed. The Pacific Northwest with its undoubted wood resources, and the proximity of the Orient as a market, in addition to the United States, continuously emphasizes the growing importance of this region. Dr. Herty's work at the Savannah Research Laboratory demonstrated the possibilities of Southern pine and his work has been well publicized, if not over-publicized. The three cornered discussion between R. S. Kellogg, Newsprint Service Bureau, J. H. Cunningham, believer in the Alaskan project, and C. H. Herty (See Paper Mill, June 1 and 29, 1935), *(4)*, clearly shows the regional cleavage, but giving as it does comparative costs makes very interesting and informative reading. It seems certain that the pattern of the American pulp and paper industry will undergo radical changes in the next few years, with the Pacific Coast and the Southern states mills prominently in the picture.

Hervey *(7)* shows that the rate of growth on the Coastal belt of the Pacific Northwest is practically twice as rapid as in Southeast Georgia.

The Copeland report already referred to points out that "The statistics of total timber stands of paper and pulp wood species require interpretation in the light of present availability—only a small part of our 1830 million cords of standing timber of the species now used is available, or at least as available as some of the foreign supplies." "Not all kinds of wood, however, are at present available for use in the manufacture of pulp. The spruces, firs, hemlocks, and pines, among softwoods; and cottonwoods and aspens, yellow poplar, birches, beech, maples, and gums, among hardwoods, are now used in sufficient quantities to warrant separate mention. The fact that different species require different processes for reduction to pulp tends to restrict their availability, particularly with respect to established mills." (p. 195—Copeland report.)

Curran *(8)* reviews the utilization of new wood species in the pulp and paper industry partly as a result of signs of exhaustion of the once "inexhaustible" spruce stands, and partly as a result of the introduction of new pulping and bleaching processes. On a percentage basis of the total wood used spruce has consistently dropped from about 76 per cent in 1899 to 37 per cent in 1932. "It infers advances in technical knowledge permitting broader utilization, combined with economic pressure requiring such use"—attention is drawn to the increase in the quantity of hardwoods used in pulping, especially since the introduction of the semi-chemical process in 1926.

Correct Hybridization

Another aspect of the pulp wood supply problem is the results obtainable by correct hybridization.

Schriener *(9)* states that the improvement of forest trees by breeding, or by pure line or mass selection can be expected to prove profitable not only to the wood producer, but also to the industry which utilizes wood. The new hybrid poplars produced by the breeding project of the Oxford Paper Co. are decidedly more valuable than native poplars, and support the view that hybridization and selective breeding of forest trees will give results comparable to those realized in the development of the older crop plants.

Murdock *(10)* shows that while it is generally believed that the rapid growth of Southern pines is due to the warm climate, the results of various investigators demonstrate that correct hybridization is a more vital factor in rapid growth than climate.

Three Phases of Development

There have generally been three phases in these developments:

1—The use of new species of wood,
2—New processes—making the use of new species possible,
3—New uses for wood products—mainly mechanical.

All are tied up together and interrelated. At the beginning of the century there were only two chemical processes—soda and sulphite. There have been added the sulphate, mono-sulfite, Keebra, Masonite and semi-chemical processes. Numerous modifications of these have been developed for the utilization of wood and wood waste in the manufacture of insulating and constructional products. Technological advances are keeping pace with the demand, in fact are waiting for the demand to catch up.

However, the paper industry is not the only industry using basic wood cellulose as its raw material. Rayon, transparent wrappings, various plastics and fillers, all use increasing quantities of cellulose from wood. The production of rayon in the United States for 1935 was 125,000 tons; the World production was about 500,000 tons. A new type of fiber—spun rayon yarn or staple fiber has been growing rapidly in favor, especially in Europe. From 27,000 tons in 1934 it jumped to 65,000 tons in 1935 and the estimated production for 1936 is fully double this latter figure. This is exclusive of rayon. Thus over 100,000 tons of bleached sulfite will be diverted to a new use in 1936.

In Competition With Other Industries

The paper industry is thus in competition with the Textile and other industries for cellulose raw materials.

Fortunately the increasing production of bleached kraft will help to fill the gap. The introduction of chlorinated sulfite pulp as an article of commerce increases further the already wide field of usefulness of this standard papermaking pulp.

It is evident that given stable world conditions the value of easily available wood supplies will gradually increase with increasing demands for cellulose in consuming industries.

Bibliography

(1)"Copeland Report," Senate Document No. 12—73rd Congress. A National Plan for American Forestry. Letter from The Secretary of Agriculture in response to S. Res. 175 (72nd Congress). The Report of the Forest Service of the Agricultural Department on the Forest Problem of the United States. In two volumes. U. S. Government Printing Office 1933—For sale by Superintendent of Documents. $1.75 per set of two volumes.
(2) "Hale Report," Senate Document No. 115—74th Congress. National Pulp & Paper Requirements in Relation to Forest Conservation. Letter from The Secretary of Agriculture in response to Senate resolution No. 205 (73rd Congress). U. S. Government Printing Office 1935. For sale by Superintendent of Documents, Washington, D. C. Price 10 cents.
(3) World Wood Pulp Statistics 1925-1935. U. S. Pulp Producers Association, 122 E. 42nd St., New York City. Price $2.00.
(4) Kellogg, Royal S. Hypothetical Cheap Newsprint. The Paper Mill and Wood Pulp News, *58*; no. 22, 11-13 (June 1, 1935). Also Herty, C. H. *58*; no. 26, 20-21 (June 29, 1935).
(5) Cunningham, J. H. $41. Alaska Newsprint Possible. Editor and Publisher, February 23, 1935.
(6) Chemical Foundation, 654 Madison Ave., New York City. The Deserted Village. No. 2.

(7) Hervey, D. E. Comparative Pulpwood Growing Capacities of Southeast Georgia and the Fog Belt on the North Pacific Coast. Paper Trade Journal *102;* no. 14, 42-43 (April 2, 1936). Pacific Pulp & Paper Industry *10;* no. 3 March, 1936.—Editorial Comments.
(8) Curran, C. E. New Wood Species. The Paper Mill & Wood Pulp News, *57;* no. 43, 24 (October 27, 1934).
(9) Schreiner, E. J. Possibilities of Improving Pulping Characteristics of Pulpwoods by Controlled Hybridization of Forest Trees. Paper Trade Journal, *100;* no. 8; 105 (February 21, 1935).
(10) Murdock, H. R. Rapid Growing Trees. Paper Trade Journal, *99;* no. 26; 29-30 (December 27, 1934).
(11) Aughanbaugh, J. E. Replacement of the Chestnut in Pennsylvania. Bulletin 54, Department of Forests & Waters, Harrisburg, Pa., 1935.
(12) Benson, H. K. Chemical Utilization of Wood. United States Department of Commerce—National Committee on Wood Utilization, Twenty-second report. United States Government Printing Office, Washington, D. C. 1932.
(13) Wells, S. D. & Rue, J. D. The Suitability of American Woods for Paper Pulp. United States Department of Agriculture Bulletin No. 1485. U. S. Government Printing Office, Washington, D. C. 1927.
(14) Bray, M. W. & Curran, C. E. White Papers from Southern Pines III. Pulping Longleaf Pine for strong, easy-bleaching pulp. Paper Trade J. *96,* no. 6; 30-4 (February 9, 1933).
(15) Fensom, K. G. The exploitation of Hardwoods on Pulpwood Limits. Pulp Paper Can. *34,* no. 3; 189-90 (February, 1933).
(16) Woods, J. B. A Permanent Supply of Pulping Woods in the Pacific Northwest. Paper Trade J. *96,* no. 21; 41-2 (May 25, 1933).
(17) Herty, C. H. Waste Pine for Paper. Paper Mill Wood Pulp News *56,* no. 38; 10, 14 (September 23, 1933).
(18) Anon. Georgia's Research Pulp and Paper Plant. Paper Trade J. *94,* no. 10; 13, 49, 56 (March 10, 1932).
(19) Munger, T. T. Forest Supplies of Pacific Northwest of Interest to the Pulp and Paper Manufacturer. Paper Trade J. *98,* no. 25; 33-6 (June 21, 1934). Also Pacific Pulp & Paper Industry, *8,* no. 5; 15-22 (May, 1934).
(20) Eldredge, I. F., Spillers, A. R. & Kahler, M. S. The Expansion of the Pulp & Paper Industry in the South. Southern Forest Experiment Station, New Orleans, La. August 5, 1935. Forest Survey Reports (Paper Industry).
(21) Eldredge, J. F. Forest Survey Releases Nos. 4-18 inclusive—November 1, 1934—January 10, 1936. Advance information on the supply of pulpwood, etc., in Survey Unit No. 1, including South Carolina, Georgia, Northern Florida, Alabama, Mississippi and Louisiana, also part of Texas. Southern Forest Experiment Station, New Orleans, La.
(22) Boyce, C. W. Pulp wood. Paper Trade J. *101,* no. 16; 33-5 (October 17, 1935).
(23) Eldredge, I. F. The Supply of Pulpwood in Georgia. Pulp & Paper Can. *36,* no. 8; 385 (July, 1935).
(24) Kress, O. The Effect of Kinds and Qualities of Pulpwood upon Pulp Quality. Paper Trade J. *94,* no. 7; 57-8 (February 18, 1932).
(25) Curran, C. E., Schwartz, S. L. and Bray, M. W. The Pulping of Cajeput, White Mangrove, Australian Pine and Cunningham Pine by the Sulphate Process. Paper Trade J. *98,* no. 23; 44-7 (June 7, 1934).
(26) Davis, M. N. Pulpwood Supply of the Pacific Northwest. Paper Trade J. *99,* no. 20; 41-2 (November 15, 1934).
(27) Anon. Examples of Pulpwood Growth in the Grays Harbour Region. Pacific Pulp Paper Ind. *9,* no. 2; 18 (February, 1935).
(28) Beuschlein, W. L. Pulp and Paper. Chemical & Metallurgical Engineering, *42,* no. 8; 417 (August, 1935).
(29) Spring, S. N. The Recent Impetus to Conservation. The Paper Mill & Wood Pulp News, *58,* no. 43; 51 (October 26, 1935).
(30) Wang, S. The Manufacture of Rayon Woodpulp. Rayon & Melliand Textile Monthly *15,* no. 5; 227-30 (May, 1934).
(31) Roos, K. The Future of Cellulose as a Raw Material. Rayon & Melliand Textile Monthly *15,* no. 7; 336-7 (July, 1934).
(32) West, C. J. Current Research on Pulp & Paper in the Government and University Laboratories of the United States. Paper Trade J. *100,* no. 21; 41-52 (May 16, 1935).
(33) Paper & Pulp Imports and Exports of the United States for 1934 and 1935. Paper Trade J. *102,* no. 11; 15-16 (Mar. 12, 1936).
(34) United States Dept. of Agriculture. Miscellaneous Technical Bulletins—Nos. 32, 41, 158, 152, 155, 142, 201, 225, 251, 256, 282, 285, 250, 234, 327, 412, 420, 523, 544, 683, 1061, 1256, 1437, 1491, etc., etc. U. S. Government Printing Office, Washington D. C.
(35) Institute of Paper Chemistry, Appleton, Wis. Bulletin No. 1, Vol. *6,* September, 1935. This issue contains a compilation of the periodicals, books and pamphlets in the Library of the Institute at that date.

Survey of Swedish Paper Industry

The annual issue of the *Swedish Timber and Wood Pulp Journal* has just appeared with 188 pages. It contains a great many interesting articles in both the Swedish and English languages. The annual numbers of the Journal are intended to give a survey of the preceding year from commercial and technical points of view and thus to have the character of a Year Book, reviewing productions, exports and markets for the various products of the timber, pulp and paper industries. The numbers contain extensive statistical material in this connection. The technical development in the pulp and paper industries of the Scandinavian countries is dealt with in a very complete survey. Among articles of a more general interest should be mentioned a comprehensive survey of the development and trend of the kraft pulp industry of the world, an article on the pulp and paper industries of Japan and a discussion of the trend of the British house building industry.

The annual issue can be ordered from the A. B. Svensk Trävaru-Tidning, Kungsgatan 17, Stockholm. The price is 3s. 6d., postage included.

E. J. Cady & Co. Joins TAPPI

In the year 1880 the firm of J. B. Halliday & Co. was established, the company being E. J. Cady, late of E. J. Cady & Co. Subsequently the firm became Cady & Grubb, doing business as paper merchants and brokers for handling the output of leading mills in and around the Chicago area. After the dissolution of this firm the ability of E. J. Cady in conciliating the views for making adjustments between paper makers and box makers began to be recognized, and also in the years following his knowledge of the art of paper making became generally known.

It became increasingly imperative by the year 1915 that more accurate instruments for testing and weighing paper be devised. First improvements were effected and later in 1918 original designs offered of micrometers, scales and motor-driven board testers. Patents were procured, the equipment being manufactured in Chicago by William La Batt of Exact Machine Works. For a time the board testers were produced in Milwaukee by Delta Manufacturing Company but in 1929 when further improvements were effected, all operations were confined to Chicago where close supervision might be maintained, and that the services of Mr. LaBatt, an able engineer, might be utilized.

Since the death of E. J. Cady in May, 1931 and of his widow in April, 1936, the ownership of the company has been vested in their only daughter, Mrs. H. C. Graham and her uncle, George Cady. The entire supervision and management since May, 1931 has been by Miss Estelle N. Walters who came with the company in 1929.

Their line is highly specialized and widely known; the management is appreciative of the privilege of helping hold the dykes during the trying years just passed; and the company gratefully acknowledges by taking membership in the Technical Association of the Pulp and Paper Industry, the favor that has been extended them by the support of their co-workers. This company will be represented in the Technical Association by Miss Walters.

New York TAPPI Group to Meet

The first fall meeting of the members and friends of the Technical Association of the Pulp and Paper Industry in Northern New York will be held at the Syracuse Hotel, Syracuse, N. Y. Saturday, September 26.

There will be a luncheon at 1:00 p.m. followed by a gold tournament in the afternoon and a dinner meeting at 7:30 p.m.

Robert Huntley of the Oswego Falls Corporation has been appointed secretary-treasurer to fill the unexpired term of E. P. McGinn who is now in Canton, N. C. with the Champion Fibre Company. John Schuber of the Solvay Process Company, Syracuse, N. Y. is chairman of the New York State TAPPI group and will be glad to hear from anyone who may wish to attend the meeting. The speaker will be announced soon.

TAPPI Notes

W. T. Webster, engineer with J. O. Ross Engineering Corporation for a number of years is now general superintendent of St. Regis Kraft Company, Tacoma, Wash.

E. R. Lang, a recent graduate from the N. Y. S. College of Forestry has gone with Continental Color Corporation of Cleveland, Ohio, as chemist.

C. A. Anderson, formerly of Gilman Paper Company, Gilman, Vt. has taken a job with U. S. Gypsum Company, Oakmont, Pa.

C. E. Roth of Mead Corporation, Chillicothe, Ohio has been transferred to Dill & Collins Inc., Philadelphia, Pa.

Pulp and Paper Industry Literature Review

Abstracts of Articles and Patents Compiled by the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman

Copies of United States Patents can be obtained from the United States Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.

Sulphite Process

Preparation of Sulphite Pulp Using a Cooking Acid Containing Selenium. E. Hägglund, C. H. Bäckström, M. Karanovic, L. Runquist, and O. Vincent. Svensk Pappers-Tidn. 38, No. 20:659-662, 665-555; No. 21:695-698, 701 (Oct. 31, Nov. 15, 1935).—Preliminary studies indicated that the stability of cooking acid increased with increasing amounts of base which also decreased the tendency toward a sulphuric acid formation. These effects differed but slightly from a pure to a selenium contaminated acid, and hold true since the speed of conversion of thiosulphate through pentathionate to sulphate decreases with the hydrogen-ion content. Pulps prepared from chemically pure cooking acid with or without addition of selenium gave evidence that the limit of harmful selenium content is higher than was previously supposed. Only when the selenium content is from one to two mg. per liter does the pulp quality suffer. But when, however, the industrial cooking acid fortified by relief gas contains varying amounts of volatile impurities such as turpentine, and selenium is also present, the permissible amount of the latter is largely reduced.—C. J. W.

Use of Liquid Sulphur Dioxide in the Preparation of Cooking Liquor. F. Bergström. Finnish Paper and Timber J. 17, No. 20:922, 924 (Oct. 31, 1935).—In connection with a large-scale process for the recovery of sulphur dioxide shortly to be in operation, tank cars for shipping the product are described. Designs for the mill storage tank and absorption system are presented, and the advantage of the use of liquid sulphur dioxide under varying conditions are discussed.—C. J. W.

System for the Recovery of Heat from Sulphite Digesters. D. K. Dean, assignor to Foster Wheeler Corp. U. S. pat. 2,029,360 (Feb. 4, 1936).—The gas relief is passed through a separator to remove entrained liquid and pulp, and is then passed through an indirect heat exchanger where it heats up water that is stored in a steam accumulator.—A. P.-C.

Sulphite Waste Liquors

Qualitative and Quantitative Analyses of Sulphite Waste Liquor. F. Roll. Giesserei 22:628-630 (1935); C. A. 30:1996.—Binders for molding sands are briefly discussed. The sulphite waste liquor from paper mills contains inorganic constituents, such as calcium sulphite, calcium oxide, sulphurous acid, water, thio acids, other acids, chiefly lignosulphonic acids or their calcium salts, a little fermentable sugar, dextrose, mannose, as well as gums, albumins, resins, vanillin and sometimes acetic acid. The properties are therefore quite variable. The waste liquor is purchased at 32-25 deg. Bé and in some cases as a powder. The latter is much more suitable for mixing with sand. Qualitative and quantitative analyses are briefly discussed. The average composition of the dry substance from waste liquor is: lignin 50, sugars 10, sulphur dioxide 10, calcium oxide, 8, water 7, remainder 15 per cent.—C. J. W.

Analysis of Sulphite Waste Liquor. A. M. Partansky and H. K. Benson. Paper Trade J. 102, No. 7:29-35 (Feb. 13, 1936).—A survey of the methods found in the literature, the opinions of other writers upon these methods, and the authors' own experiences, from which is evolved a concise systematic method of analysis of sulphite waste liquor, comprising methods for the determination of total solids, residue on ignition, lime, total sulphur, sulphates, free and loosely combined sulphur dioxide, permanganate oxygen consumed, volatile acids, methanol, ethanol, acetone and related compounds, furfural, pentosans and pentoses, lignin as beta-naphthylamine lignosulphonate, and sugars.—A. P.-C.

Combustible Sulphur in Sulphite Waste Liquor. Kenneth A. Kobe and Anthony D. Centenero. Paper Trade J. 101, No. 24:36 (Dec. 12, 1935).—The amounts of net or combustible sulphur in sulphite waste liquor concentrated by various processes were found to be much below the total sulphur content and to be about the same as some of the high-sulphur coals in the Mid-West. Methods of removing sulphur dioxide from stack gases are discussed.—A. P.-C.

Waste Liquors and Gases of the Paper Industry. III. Clarence J. West. Paper Trade J. 101, No. 22:43-38, No. 23:37-40; No. 24:37-40; No. 25:46-49; No. 26:35-38 (Nov. 28 to Dec. 26, 1935); 102, No. 1:39-44; No. 2:42-44; No. 3:31-35 (Jan. 2 to 16, 1936).—A survey of domestic and foreign patent literature on the utilization of waste liquors and waste gases of the pulp and paper industry over the period 1931-1935.

The Paulson Process for Spent Sulphite Liquor Utilization. Sidney D. Wells. Paper Trade J. 101, No. 19:40-42 (Nov. 7, 1935); Paper Industry 17:659-660 (Dec., 1935).—A progress report and heat balance concerning the Paulson process of evaporating and burning sulphite waste liquor (U. S. pat. 1,393,241, Oct. 11, 1921). The introduction of indirect heating of the liquor and the use of screw presses to remove liquor from the pulp from the blow pits are the most recent refinements to the process.—A. P.-C.

First Drawinol Plant in Sweden for Manufacturing Alcohol of 99.8-100 percent by Weight. K. R. Dietrich. Svensk Pappers-Tidn. 38, No. 22:730-732, 735-736, 741 (Nov. 30, 1935).—The article describes the installation of the first Swedish Drawinol plant erected at Tommelilla for converting sulphite waste liquor into 100 per cent alcohol. —C. J. W.

Sulphite Cellulose Tanning Extract. L. Ya. Reznik and M. I. Khaduik. Russian patent 37,796 (July 31, 1934).—Sulphite cellulose solutions are prepared by introducing ammonia and sodium sulphate into the heated sulphite solution and concentrating to a solid consistency.—C. J. W.

Sulphite Cellulose Tanning Extracts. L. Ya Reznik-Russian patent 37,797 (July 31, 1934).—Ammonia, ammonium sulphate and ammonium bisulphate are introduced into heated sulphite solution and the product is evaporated to the consistency of dry extract.—C. J. W.

Sulphite Cellulose Extract. L. Ya. Reznik. Russian patent 37,798 (July 31, 1934).—The sulphite cellulose solution is treated before concentration with ammonia and

acid salts of chromium, aluminum or of iron and ammonia.—C.J.W.

Plastic Masses from Lignin. A. M. Nastyukov, M. P. Polyakov and Kh. G. Enikeeva. Russian patent 38,322 (Aug. 31, 1934).—Lignin obtained from incomplete hydrolysis of lignocellulose with acid is mixed with 6-10 per cent of plasticizer, such as latex or benzylcellulose.—C.J.W.

Process for the Pre-treatment of Sulphite Waste Liquor for the Production of Yeast. Aktiebolaget Bästa, Stockholm. Ger. pat. 617,780 (Feb. 5, 1927).—In the manufacture of yeast from waste sulphite liquor, there arises a condition in which the yeast can become discolored and destroyed due to the impurities from the waste liquor in the fermentation vats. This can be prevented by neutralization with lime stone to a desirable degree of acidity, then with lime and finally or simultaneously with alkali carbonate.—J.F.O.

Recovery of Sulphurous Acid from Dilute Gases. Christian Hansen. Ger. pat. 616,824 (Feb. 3, 1932).—Solutions of salts of thiocyanogen are used in place of water for washing out the sulphurous acid from the dilute gases. These salts have a much greater ability to absorb sulphurous acid and also gives it up easier upon heating.—J.F.O.

Reclaiming By-products in Sulphite Cooking. Peter A. Paulson. U. S. pat. 2,025,891 (Dec. 31, 1935).—This is an improvement on Paulson's U. S. pat. 1,393,241, of Oct. 11, 1921. Instead of recovering the waste liquor merely by allowing to drain, it is removed by screw presses, thus increasing recovery from 55 per cent to 95 per cent of the total amount of waste liquor. The steam from the waste liquor evaporators is used for indirect heating of the cooking liquor instead of being injected directly into the digesters. The concentrated liquor is burned directly in spray form instead of being dried completely before burning.—A.P.-C.

Preparation of Alkali Sulphite or Bisulphite Solutions from Waste Liquors Obtained in the Digestion of Cellulose with Alkali Sulphur Compounds. Gustaf Haglund assignor to Patentaktiebolaget Gröndal-Ramen. U. S. pat. 2,029,616 (Feb. 4, 1936).—The waste liquor is concentrated and incinerated. The fused mass is ground and roasted to convert sulphides and thiosulphates into sulphites and sulphates and then leached with water. Part of the solution is treated with sulphur dioxide and finely ground limestone till the alkali metal compounds have been converted to bisulphite, the balance of the original solution is added and the mixture is allowed to settle and is decanted from the precipitate.—A. P.-C.

Miscellaneous Digesting Methods

Treatment of Disintegrated Fibrous Vegetable Material. Aktiebolaget Defibrator. Brit. pat. 432,914 (Feb. 6, 1934).—Paraffin or petroleum jelly is added to the dry fibrous material, which is then heated at over 100 deg. C. and mechanically defibrated, ground, beaten or kneaded.—A.P.-C.

Production of Cellulose from Lignocellulose Material. British Celanese Ltd., W. H. Groombridge and E. V. Mellers. Brit. pat. 433,783 (Feb. 16, 1934).—Wood chips are extracted at 150 deg. to 240 deg. C. at or above 1 atmosphere pressure with a homogeneous solvent mixture containing not less than 20 per cent of water and not less than two organic solvents of the following classes: monohydric aliphatic alcohols, aliphatic ketones, cyclic diethers, aromatic hydrocarbons, *e.g.,* water-alcohol-acetone or water-alcohol-benzine.—A.P.-C.

Production of Cellulose from Lignocellulosic Materials. Walter H. Groombridge and Eric V. Mellers, assignors to Celanese Corp. of America. U. S. pat. 2,024,689 (Dec. 17, 1935).—Wood, in the form of chips or of mechanical pulp, is treated at high temperature with a solvent mixture containing a substantial proportion of water and at least two organic liquids which are chemically inert towards lignin and which have substantially different dipole moments. Treatment may be carried out under a pressure substantially higher than that due to the solvents at the temperature used.—A.P.-C.

Treatment of Cellulosic Materials. Henry Dreyfus. U. S. pat. 2,022,654 (Dec. 3, 1935).—Lignocellulosic materials are treated with organic solvents at high temperature (150 deg. to 250 deg. C., and preferably 165 deg. to 220 deg. C.) under a pressure (20 to 150 atmospheres, and preferably 40 and 100 atmospheres) above the pressure produced by the solvent at the temperature employed.—A.P.-C.

Production of Cellulosic Materials or Cellulose. Henry Dreyfus. U. S. pat. 2,019,598 (Nov. 5, 1935).—Raw cellulosic material is cooked at 100 deg. to 160 deg. C. under a pressure between 10 to 100 atmospheres in an aqueous solution comprising metallic bisulphites, Turkey red oil and free sulphur dioxide in which the ratio of free to combined sulphur dioxide is not greater than 1:2 and preferably lies between 1:10 and 1:50.—A.P.-C.

Manufacture of Cellulose from Lignocellulose Materials. Walter H. Groombridge and Eric V. Mellers, assignors to Celanese Corp. of America. U. S. pat. 2,022,664 (Dec. 3, 1935).—Wood chips are cooked at 115 deg. to 175 deg. C. under a pressure of 20 to 100 atmospheres in an organic solvent or mixture of solvents containing 0.5 to 8 per cent of inorganic basic or acid substances.—A.P.-C.

Production of Cellulose. Henry Dreyfus. Brit. pat. 427,626 (April 23, 1935).—Cellulose, suitable for use in the manufacture of organic derivatives thereof, is prepared by subjecting wood pulps, which have been obtained by processes for removing the greater part of the lignin from the wood but which still contain residual lignin, to treatment with 0.5 to 3 per cent caustic alkali solution at 100 deg. to 200 deg. C. and then with 10 to 25 per cent caustic alkali solution at below 35 deg. C. The treatments may be under pressure. In an example, spruce sulphite is treated with 30 times its weight of 1 per cent caustic soda solution at 110 deg. C. under 5 atmospheres pressure produced with nitrogen for about 3 hours and then with 10 times its weight of 12 per cent caustic soda solution at normal temperature for 6 to 8 hours. The cellulose is washed with water and heated with 3 times its weight of glacial acetic acid at 60 deg. C. for 5 hours.—A.P.-C.

Manufacture of Cellulose from Lignocellulosic Materials. British Celanese, Ltd., W. H. Groombridge and E. V. Mellers. Brit. pat. 436,090 (April 4, 1934).—The materials are treated at a temperature of 115 deg. to 175 deg. C. under a pressure of 20 to 100 atmospheres for the extraction of lignin with a solvent or solvent mixture (*e.g.,* ethyl alcohol, ethyl alcohol + benzene + water) containing not less than 0.5 per cent of an alkaline substance (such as caustic soda) and (or) sulphur dioxide.—A. P.-C.

Manufacture of Cellulose. H. Dreyfus. Brit. pat. 438,435 (July 10, 1934). Wood is heated at less than 95 deg. with 2 to 10 per cent of nitric acid and then at 100 deg. to 130 deg. C. with 1 to 5 per cent of caustic soda.—A.P.-C.

Manufacture of Cellulose. H. Dreyfus. Brit. pat. 438,436 (May 16, 1934).—Wood is heated at 100 deg. to 150 deg. C. with water under pressure and then at 75 deg. to 95 deg. C. with 2 to 10 per cent of nitric acid.—A.P.-C.

Treatment of Pulp. H. Dreyfus. Brit. pats. 438,433

and 438,434 (May 16, 1935).—No. *438,433*—Chemical wood pulp containing residual lignin, pentosans, and (or) other encrusting substances is heated at 70 deg. to 95 deg. C. with 2 to 10 per cent of nitric acid containing substances resulting from the treatment of a ligno-cellulose material with nitric acid. The material may be subsequently treated with dilute alkali. No. *438,434*—Chemical wood pulp containing residual lignin, pentosan, and (or) other encrusting substances is heated at not less than 100 deg. C. with caustic soda (less than 5 per cent) containing substances resulting from the treatment of a lignocellulose material with caustic soda.—A.P.-C.

Production of Cellulose. Henry Dreyfus. Fr. pat. 784,333 (July 22, 1935).—Cellulose is extracted from lignocellulosic materials at a high temperature by a solvent mixture containing water and at least two organic liquids of different dipole moments, due to the presence in the molecule of groups of different types. Examples are given of the use of mixtures containing (1) 15 parts acetone, 35 parts of water and 50 parts of ethyl alcohol, (2) 65 parts of ethyl alcohol, 25 parts of water and 10 parts of benzene, (3) 50 parts of dioxane, 30 parts of water and 20 parts of acetone.—A.P.-C.

Manufacture of Fiber Products. Daniel M. Sutherland, Jr. U. S. pat. 2,030,946 (Feb. 18, 1936).—The white water is kept of practically constant volume and is circulated in a closed system, a suitable antiseptic being added to prevent slime formation. The wet stock entering the system is dehydrated to contain the same moisture content as the formed fiber product leaving the system, and the white water is added thereto together with an amount of antiseptic equal to that retained in the formed product.—A.P.-C.

Paper Pulp Making Process. Sidney D. Wells assignor of one-half to Gerald D. Muggleton. U. S. pat. 2,029,973 (Feb. 4, 1936).—Materials such as grasses, straws, etc., are washed to remove foreign matter, pressed or crushed, treated in a rod mill with hot semi-spent liquor from a subsequent more complete digestion, washed, screened to remove pithy material if necessary, and finally digested in a batch or continuous digester.—A.P.-C.

Beating

Standardization of Beaters. Standardization of Beaters for Reworking of Paper and Newsprint Wastes. A. M. Berlin, K. P. Belavin and P. I. Borisov. Leningrad. Oblastnoi Sovet Nauch. Inzhenerno-Tekh. Obshchestva Tzellyulozno-Bumazhnoi Prom. (Problems of Pulp-Paper Production) No. 4:3-25, 26-35 (1935); C. A. 30:1228.—A comparative discussion of the construction and performance of various types of beaters with illustrations and mathematical treatment.—C. J. W.

Reason for Increase in Paper Strength on Beating. S. R. H. Edge. Proc. Tech. Sect. Paper Makers' Assoc. 16:273-274 (1935).—Previously inexplicable results obtained by beating wood pulp in toluene are now found to be in agreement with W. B. Campbell's theory of the nature of paper strength.—A.P.-C.

The Thorsen-Héry Beater. George W. Doge. Paper Trade J. 102, No. 5:36-38 (Jan. 30, 1936).—A description of the Thorsen-Héry beater with a comparison of its power requirements and hydrating effects with those of the hollander type of beater.—A.P.-C.

Appleton Vortex Beater Is Improved. Anon. Paper Trade J. 101, No. 18: 54, 56 (Oct. 31, 1935).—A brief description of the latest type of Appleton vortex beater, with an indication of its merits.—A.P.-C.

Hydration of Plant Fibers by Beating and Its Influence on the Strength of the Paper. J. G. Chintschin. Zellstoff u. Papier 15, no. 10: 399-400. Oct., 1935).—The author states that there is no chemical change in the fiber during beating, only physical-chemical changes taking place. The swelling of the fiber depends upon its pentosane content and its treatment. The influence of hydration of various properties of the fiber are discussed.—J. F. O.

Beater. W. Voith, H. Voith, and H. Voith. Brit. pat. 432,009 (Jan. 19, 1935).—The stock is fed between the roll and bed plate as a narrow stream at one end of the roll, and after each passage between the roll and bedplate is transferred longitudinally one pitch by suitable passages in the housing. It finally leaves the other end of the roll, still in a narrow stream.—A.P.-C.

Bleaching

New Method for the Determination of Active Chlorine in Bleaching Solutions. H. Drageant. Papier 39: 55-63 (Jan., 1936).—A description and discussion of Willson's method according to which the solution is rendered slightly acid with acetic acid and titrated directly with standard sodium thiosulphate solution, using iodized starch paper for determining the end point. The sulphur of the thiosulphate is quantitatively oxidized to sulphate, requiring eight atoms of chlorine per molecule of thiosulphate. The results agree well with those of the arsenite method.—A.P.-C.

Lime in the Manufacture of Paper. John W. Stockett, Jr. Paper Industry 17: 652-654 (Dec., 1935).—A description of types, classes and grades of lime and of their use in the soda, sulphate and sulphite processes and in the manufacture of bleach liquor.—A.P.-C.

The Solubility of Lime in Water. G. L. Larocque and O. Maass. Can. J. Research 13B: 276-279 (Nov., 1935).—The solubility of lime was determined with a high degree of accuracy over the temperature range 0° to 30°C. by a conductivity method, and the degree of dissociation of lime over this temperature range and over the concentration range of 0 to 1.164 g. CaO per 1. was calculated. —A.P.-C.

Lime for Pulp Bleaching. O. L. Cook. Paper Industry 17: 815-817 (Jan., 1936).—A brief discussion of the properties and use of lime from the standpoint of hypochlorite bleach manufacture.—A.P.-C.

Chlorine Handling and Bleach Make-Up Equipment. W. L. Savell. Paper Industry 17: 822-828 (Jan., 1936). —A general description and discussion of equipment available and used for the commercial handling of chlorine and of the precautions which should be taken in bleach making. —A.P.-C.

Chlorine: Its Properties for Pulp Bleach. Harvey G. Elledge. Paper Industry 17: 806-809 (Jan., 1936).—A review of the properties of chlorine, more particularly from the standpoint of its use as a pulp-bleaching agent. —A.P.-C.

Calcium Hypochlorite for Pulp Bleaching. Ferri Casciani and Axel Heilborn. Paper Industry 17: 810-814 (Jan., 1936).—An outline of the preparation of bleaching powder and of calcium hypochlorite bleach liquors, and of their use in the bleaching of pulp.—A.P.-C.

Water Considerations in Pulp Bleaching. DeVane Hamilton. Paper Industry 17: 818-819 (Jan., 1936).—A discussion of the quality of water from the standpoint of its effect on pulp bleaching, and of the treatments to which it can be subjected to improve its quality from this standpoint.—A.P.-C.

Buffered Bleaching. C. T. Henderson. Paper Industry 17: 820-821 (Jan., 1936).—An outline of the hypochlorous acid process of pulp bleaching with a discussion of its merits.—A.P.-C.

The Bleaching of Western Hemlock Sulphite. N. W. Coster. Paper Industry 17; 829-831 (Jan., 1936).—A de-

scription of present-day practice followed in the bleaching of western hemlock sulphite in Pacific Coast mills.—A.P.-C.

Hardwood Sulphite Bleaching. W. M. Osborne. Paper Industry 17; 832-833 (Jan., 1936).—A brief outline of present-day practice.—A.P.-C.

Bleaching Soda Fiber. E. Sutermeister. Paper Industry 17; 834-836 (Jan., 1936).—A brief general discussion of present-day practice.—A.P.-C.

Bleaching of Old Paper Pulp. E. G. Milham. Paper Industry 17; 837-838 (Jan., 1936).—A brief description of present-day practice.—A.P.-C.

Some Recent Developments in Bleaching Chemical Wood Pulps. John D. Rue, Paper Trade J. 101, No. 18; 87-90 (Oct. 31, 1935).—A description of some recent pulp chlorinating installations with which the author is personally familiar.—A.P.-C.

Critical Observations on Old and Modern Bleach Processes. Questionnaire of the Austrian Section of the German Pulp and Paper Association. Papier-Fabr. 33, No. 36; 300-304 (Sept. 8, 1935). A practical discussion of the various methods used for bleaching pulp, the old as well as the new. The bleaching in beaters is still the most common method due to its simplicity. Two stage bleaching, using chlorine gas in the first stage followed by washing with alkali and then finishing the bleaching with calcium hypochlorite is the most economical. Whiteness is not a linear function of bleach consumption, in order to get a high whiteness considerable bleach is required. Several of the more common bleaching systems are described. —J. F. O.

Bleaching Pulp in Kollergangs. D. C. M. Papyro. Papeterie 57: 1070 (Dec. 10, 1935).—A brief discussion of the advantages of bleaching pulp in kollergangs. Easy-bleaching stock at a consistencey of 20 to 30 per cent can be brought to an excellent whiteness with a consumption of as little as 1 per cent bleaching powder.

Process for Bleaching Wood Pulp. Alois Danninger. Fr. pat. 788,915.—Pulp is bleached by means of nascent hydrosulphite prepared directly in the stock by the action of sulphur dioxide on zinc dust.—A.P.-C.

Production of Bleached Pulp. Arno J. Luth, Richard A. Nugent and Neil H. Christian, assignors to Nekoosa-Edwards Paper Co., U. S. pats. 2,030,382 to 2,030,384 (Feb. 11, 1936). *Nos. 2,030,382 and 2,030,383.*—Immediately after blowing into the diffusers and before it is exposed to the oxidizing influence of dissolved and atmospheric oxygen, sulphate pulp is treated with a strong (preferably 50 per cent) caustic soda solution to remove phlobotannin compounds. The pulp is bleached by a multi-stage process including at least one treatment with gaseous chlorine at comparatively low density and a subsequent (preferably final) treatment also at low density with a calcium hypochlorite liquor of maintained alkalinity, and between these two stages the pulp is treated with caustic alkali to remove color compounds. *No. 2,030,384*—In the processes of the two preceding patents, oxygen liberating compounds (such as alkali metal peroxides) are added to the caustic soda solution used for treating the pulp prior to bleaching.—A.P.-C.

Method and Apparatus for Introducing Reagents into Liquid Suspensions. Kenneth E. Stuart, assignor to Hooker Electrochemical Co. U. S. pat. 2,021,616 (Nov. 19, 1935).—In the bleaching of pulp with chlorine gas, the latter is introduced by means of an injector that is entirely submerged in the stock, so that no appreciable hydrolysis of chlorine takes place before it acts on the impurities of the fibers. If the pulp is circulated in a "bellmer," the injector may be spread out into a fan and built into the bottom of the "bellmer."—A.P.-C.

Method of Bleaching Pulp. Hans John, Clarence C. LeFebvre and Horace DuBois, assignors to Paper Patents Co. U. S. Pat. 2,031,485 (Feb. 18, 1936).—The pulp is subjected to a pre-bleaching with chlorine gas or with an acid hypochlorite liquor. In a second stage it is treated without agitation with an alkaline chlorine bleach containing a very large excess of available chlorine. The pulp is brought to a very high white by a final rapid treatment with an acid hypochlorite liquor. The second and third stages are preferably carried out at a consistency of about 4 per cent.—A.P.-C.

Bleaching Cellulosic Materials. Imperial Chemical Industries, Ltd. Belg. pat. 407,713 (April 30, 1935); Fr. pat. 785,002 (July 31, 1935).—Wood pulp is treated with a sulphonic acid or sulphuric acid ester, such as acetylsulphonic acid, oleyl ester of beta-hydroxyethanesulphonic acid, and sulphuric esters of decyl, dodecyl and octadecyl alcohols, or their alkali or ammonium salts, before, during or after treatment with a bleaching agent.—A.P.-C.

Bleaching Cellulosic Fibers. La Société des produits Peroxydes. Fr. pat. 786,938 (Sept. 14, 1935).—Fibers such as cotton are bleached by solutions of per compounds under a pressure of 1.5 to 4 atmospheres and at temperatures of at least 80 deg. C. The temperature may be increased to 115 deg. C. as the operation progresses. In the case of a preliminary boiling, a bleaching bath is used to which no substances of alkaline reaction need be added or a bath is used containing no caustic soda but to which sodium silicate or alkali ortho- or pyro-phosphate or alkali oxalate is added.—A.P.-C.

Process for the Improvement of Cellulose. Emil Scheller, assignor to E. I. duPont de Nemours and Co. U. S. pat. 2,026,068 (Dec. 31, 1935).—Rayon grade pulp is subjected to a four-stage treatment with (1) active chlorine till bleached to a one-half to three-quarters white, (2) alkali (preferably a caustic alkali, in absence of air). (3) sodium peroxide, (4) dilute acid, each treatment being followed by a thorough washing.—A.P.-C.

Pulp Bleaching Process. James S. Sconce, assignor to Hooker Electrochemical Co. U. S. pat. 2,021,612 (Nov. 19, 1935).—The pulp in aqueous suspension is treated with chlorine in presence of calcium carbonate and lime in such proportions as to maintain the pH of the suspension between 3.8 and 7.—A.P.-C.

Fillers

Influence of Fillers Upon the Strength of Papers. W. Brecht and H. Pfretzschner. Papier-Ztg. 61, No. 1:28-30, 32, 34 (Jan. 2, 1936).—The influence was studied of a number of fillers commonly used in the German paper industry upon the essential strength properties of paper. A medium strong unbleached sulphite pulp beaten to 50 deg. S. R. and fresh water were used for all experiments; all other additions, such as size, alum or dyestuffs were omitted. Tearing strength and folding endurance showed a considerable decrease with increasing quantities of filler at uniform basis weight; the extent of this decrease varied with the filler. Only the tear-through resistance was not affected by the filler content; the latter depends entirely upon the quantity and nature of the fiber substance present in the sheet.—C. J. W.

The Retention of Pigments in Paper. J. H. Haslam and F. A. Steele. Paper Trade J. 102, No. 2:36-39 (Jan. 9, 1935).—Of the three mechanisms by which pigment can be retained in paper, only an insignificant fraction is probably retained by filtration under ordinary conditions. Only the pigment retained by mechanical attachment can be directly measured, but since this is probably 30 per cent or less of the total pigment retained in most cases of commercial paper where there is recirculation of white water, the major portion of the pigment in the paper must be

retained by coflocculation. Laboratory tests, however, without recirculation, showed the mechanically attached pigment to be as high as 45 to 50 per cent. In support of this conclusion it is shown that, in general, variations in the furnish and sheet making conditions influence retention in the way that would be predicted from the supposition that coflocculation was the predominant factor.—A.P.-C.

Effect of Beating and Pigmentation on Sheet Properties. William R. Willets. Paper Trade J. 102, No. 3: 36-39 (Jan. 16, 1936).—Beating increases the retention of titanium dioxide, increases the strength and decreases the opacity of paper. The decrease in opacity caused by beating is greatest in the case of unpigmented paper; as the titanium dioxide content increases, the effect of beating in decreasing opacity becomes much less. The loss in strength resulting from pigmentation to secure a given opacity of a beaten stock is much less than the gain in strength resulting from beating. Since only small amounts of titanium dioxide are needed to obtain given opacity results, the ash content is not greatly increased and consequently the strength is not affected to any great extent.—A.P.-C.

The Fair System of Furnishing Filler to Paper. R. E. Hayes. Pulp Paper Mag. Can. 37: 102-104 (Conv. No., 1936).—This system consists in introducing the filler into the paper as a slurry which is added directly on the fourdrinier wire at a point which is selected so that the quantity which drains through the wire is a minimum. The apparatus consists of a curved metal shield covered with corrugated rubber covering material and provided at its lower edge with a soft rubber or oilcloth lip. The performance of the system in the manufacture of newsprint is described and compared with the results obtained by the usual method of adding the filler in the beaters.—A.P.-C.

The Use of White Pigments in Paper. J. J. Crawford. Pulp Paper Mag. Can. 37: 97-101, 104 (Conv., No., 1936).—Experiments were carried out comparing the relative effects of titanium dioxide, zinc sulphide, normal lithopone and Titone-P (a commercial product containing about 15 per cent titanium dioxide and 85 per cent lithopone). For good retention the use of rosin size (or some equivalent material) is essential; best retentions are obtained by admixture with rosin size before addition to the beater; failing this the pigment should be added before the alum. When the alum is added after the pigment, however where appreciable quantities of foreign color are present the precipitation of colored matter on the pigment particles defeats the advantage gained by higher retention. The Mullen strength is adversely affected, to approximately the same extent for each pigment, as the degree of pigmentation is increased. Lithopone is the least effective in respect to improving color, but nevertheless the improvement is very marked.—A. P.-C.

Progress of Latex in the Paper Industry. R. L. Fine. Paper Industry 17: 801-803 (Jan., 1936).—A brief outline of present-day methods of incorporating rubber latex into paper and of its advantages.—A.P.-C.

Coated Papers

Coated Papers for Book Binding. Papier-Ztg. 60, No. 86: 1512-1513; No. 87: 1527-1528 (Oct. 26, 30, 1935).—A description of different types of fancy colored papers with novel effects, such as marble paper, batik paper and various other techniques, as well as their preparation by hand on a small scale. They are being used for book binding purposes.—C. J. W.

The Application of Nitrocellulose Emulsions to Paper. C. B. Hollabaugh. Paper Trade J. 101, No. 25; 39-45 (Dec. 19, 1935).—A new method is presented for applying nitrocellulose coatings to paper. It consists essentially in applying nitrocellulose directly to the porous sheet in the form of an aqueous emulsion, in which a viscous nitrocellulose lacquer is the disperse phase, to produce a thin, continuous, non-porous film over the surface of the sheet. The advantages of the method are pointed out.—A.P.-C.

Coating Composition and Method of Preparing Same. Webster E. Byron Baker, assignor to Stein Hall & Co., Inc., U. S. pat. 2,024,123 (Dec. 10, 1935).—Starch is treated with a concentrated weak fatty monobasic liquid organic acid in presence of a small amount of a strong acid, to obtain a wildly dextrinized and esterified soluble starch. The acidity is neutralized by adding ammonia to a pH of 9.0; about 10 per cent of dry sodium silicate is added, the mixture is dissolved in boiling water, and the solution is mixed with wet china clay.—A. P.-C.

Coating Composition. Paul Friedrich, assignor to Trustkantoor Amstelland N. V. U. S. Pat. 2,027,686 (Jan. 14, 1936).—A composition suitable for coating paper and other materials is prepared by mixing a preponderance of bituminous hydrocarbons together with smaller amounts of aliphatic hydrocarbons and a mixture of fluid homologues and fluid derivatives of benzene and heating above 130 deg. C. under pressure with rapid stirring.—A.P.-C.

Fire-Resistant Composition. Ernest R. Hanson, assignor to Halowax Corp. U. S. pat. 2,028,715 (Jan. 21, 1936).—A composition suitable for fireproofing paper and other materials consists of a mixture of highly halogenated cyclic compounds (of the chlorinated or brominated naphthalene or anthracene types) with a plasticizer (which is preferably an amorphous or resin-like ring type compound, and more specifically and preferably a halogenated derivative of diphenyl, acenaphthene or phenanthrene).—A.P.-C.

Paper Coating and Apparatus. Lloyd Hornbostel, assignor to Beloit Iron Works. U. S. pat. 2,032,211 (Feb. 25, 1936).—A uniform thin film of coating material is applied in fluid condition to a heated roll which partially dries it and transfers it to a web of paper at a point on the paper machine where the paper has a dryness of approximately 80 per cent.—A.P.-C.

Manufacture of Coated Paper. Diong D. Uong, assignor to Fitchburg Paper Co. U. S. pat. 2,030,483 (Feb. 11, 1936).—Coating material in powdered form is applied to a web of paper while it is still on the paper machine and contains sufficient moisture to act with the powdered material to produce an effective coating on the paper.—A.P.-C.

Coated Creped Paper and Process for Producing Same. William W. Rowe, assignor to The Paper Service Co. U. S. pat. 2,030,156 (Feb. 11, 1936).—A web of creped paper is coated with a substance such as tar, asphalt, etc., in contact with a roll, and is stripped from the roll by means of a doctor.—A.P.-C.

Process of Coating Paper. William J. Montgomery and Donald B. Bradner, assignors to The Champion Paper and Fibre Co. U. S. pat. 2,029,273 (Jan. 28, 1936).—A A coating composition is deposited upon a suitable finishing surface (*e. g.*, by spraying on a steam-heated highly polished roll) and hardened while in contact with the said surface. Either before or after the coating is hardened the paper is caused to adhere to it, and the paper and adhering coating are stripped from the roll.—A.P.-C.

Filling or Coating Compositions for Paper. L. Mellersh-Jackson assignee of R. T. Vanderbilt Co., Inc. Brit. pat. 438,297 (Dec. 7, 1934).—Powdered clay is intimately mixed in the dry with finely divided quicklime and alum (total weight of lime and alum not more than 40 per cent of the weight of the clay), and the mixture allowed to react in water. Small quantities of calcium carbonate and

(or) trisodium phosphate may also be added to the dry mixture.—A.P.-C.

Wallpaper. H. Strauven G.m.b.H. Brit. pat. 430,284 (June 17, 1935).—Relief-patterned wallpaper is made by applying to a plain sheet or web of paper a plastic mass consisting of glue, and a highly voluminous filler, *e. g.*, talcum powder. The weight of filler may exceed that of the glue by 15 to 30 per cent and the composition may also contain pigments.—A.P.-C.

Modernized Coating Equipment. Frank W. Egan. Paper Trade J. 101, No. 18: 90-91 (Oct. 31, 1935).—An outline of some of the more recent developments in paper coating equipment.—A.P.-C.

Coating Composition. Joseph H. Swan 3rd, assignor to The Gardner-Richardson Co. U. S. pat. 2,025,788 (Dec. 31, 1935).—A composition suitable for coating container board is obtained by forming an alkaline solution of casein and slowly adding with stirring a solution of formaldehyde (about 10 per cent formaldehyde on the weight of the casein); adding a polysulphide solution to a rubber latex emulsion, and adding the casein-formaldehyde solution to the polysulfide-latex emulsion in such proportions that the final mixture contains more than 4 parts of latex solids to 1 part of dry casein.—A.P.-C.

Coated Paper. Ernst Fues, assignor to Anthony W. Deller, U. S. pat. 2,024,635.—Paper is coated on the paper machine, while still moist, with a slippery, paste-like mass produced by excessive grinding of a mixture of mineral filler and fibrous material.—A.P.-C.

Method of Coating Paper. James A. Cameron and Robert McC. Johnstone, assignors to Cameron Machine Co. U. S. pat. 2,025,375 (Dec. 24, 1935).—The web to be coated is brought into contact with the dry surface of one roll of a coating press at a point well in advance of the nip of the press. Coating composition is applied to the entire width of the other roll at a point relatively remote from the nip, and an unconfined pool of controlled volume of the coating composition is maintained at the nip by regulating the speed of the rolls, thickness of the coating composition and amount of the latter fed to the roll. After passing through the nip, the web is maintained in contact with the dry surface of the first-mentioned roll for a distance beyond the point where the film of coating material, common to the two rolls at the nip, breaks—A.P.-C.

Coated Absorbent Materials and Apparatus for Producing the Same. George E. Pelton. U. S. pat. 2,022,322 (Nov. 26, 1935).—The invention provides improvements in the design and construction of apparatus for applying coating (*e.g.*, pyroxylin or cellulose ester) to one side of highly absorbent materials which have been freed from oils, gums, etc., such as base material for typewriter ribbons or carbon paper, the coating being applied to the side opposite the one intended to receive the ink.—A.P.-C.

Drying

Drying of Sulphite Pulp with Examples from the Scandinavian Pulp Industry. E. A. Ernstler. Zellstoff u. Papier 15, No. 10:394-96 (Oct., 1935).—Description of several recent dryer installations in sulphite pulp mills, especially those which have installed the Svenska Flaktfabriken system (an enclosed system with forced circulation); the widespread use of suction couch and presses and the installation of a Minton dryer at the Kymmene sulphite mill.—J.F.O.

Complement to the Study of the Steam Cycle In Paper Making. Steam Under Reduced Pressure for Heating. Paul Vidal. Papeterie 57:1073-1077, 1110-1114 (Dec. 10, 25, 1935).—A discussion showing the advantages of and economies which can be effected by using at least part of the steam exhausted from the low-pressure stage of the steam engine for heating purposes (either in winter or for paper machine ventilation). The steam thus used is advantageously by-passed and sent through an air condenser on its way to the water condenser, thus heating to about 35 deg. to 40 deg. C. the air which may be further heated or otherwise conditioned if required.—A.P.-C.

Factors of Importance in the Drying of Paper. F. C. Clark. Paper Trade J. 101, No. 19:33-35 (Nov. 7, 1935).—A brief discussion drawing attention to the importance of preventing the overdrying of paper at any stage in its manufacture and to the importance and difficulty of maintaining the correct moisture content.—A.P.-C.

Consumption of Steam in Paper Machine Driers. E. K. Papeterie 57:973-974 (Nov. 10, 1935).—A brief discussion of the factors affecting steam consumption in paper machine driers and of the means of reducing it to a minimum.—A.P.-C.

Some Important Factors Involved in the Drying of Paper. F. W. Adams. Paper Trade J. 101, No. 24: 33-35 (Dec. 12, 1935).—A brief discussion of the principal factors affecting rate of drying, steam economy and completeness of drying.—A.P.-C.

A Study of the Drying of Paper and of the Effect of Hot Air Blasts. Paul Vidal. Papeterie 57:829-833, 874-881, 918-926 (Sept. 25, Oct. 10, 25, 1935).—A mathematical discussion, based on observations carried out over a period of a couple of years on two paper machines 2 m. wide and running at 60 to 100 m. per min. on ordinary and medium grades, showed that the advantages and disadvantages of ventilation by means of hot air blasts just about balance.—A.P.-C.

A Forward Step in the Control of Paper Drying. A. H. Stanton. Paper Trade J. 101, No. 18:62, 64 (Oct. 31, 1935).—A description of the principle and advantages of the Tenso-Temp System in which the steam admission valve supplying steam to the driers is operated by a single air-controlled system under the joint action of a tension control unit and a temperature control unit.—A.P.-C.

The Effect of Drier Drainage Upon the Drying of Paper and Its Control. H. C. Cram. Paper Trade J. 101, No. 17:36-39 (Oct. 24, 1935).—A discussion of the influence of drier drainage on the performance of paper machine driers, with a description of the Cram system and discussion of its merits.—A.P.-C.

Calendering or Drying of Materials. W. W. Spooner. Brit. pat. 436, 654 (April 16, 1934).—Paper or the like is heated on one side by contact with a metallic surface (*e.g.*, a heated roll in a paper machine), and to the other side are applied a number of inclined jets of air at high velocity and at a temperature greater than that of the paper, the air being collected in a hood, reheated and used over again.—A.P.-C.

Device for the Introduction of Steam into and Removal of Condensate from Paper Machine Drier Cylinders. J. M. Voith. Addn. pat. 45,395 to Fr. pat. 751,149.—The seat of the siphon pipe is independent of the movable steam box and is thus unaffected by expansion and contraction of the steam box. The seat of the pipe is connected to the paper machine frame in such a manner as to be oscillated if desired. The steam box is also independent of the condensate evacuating pipe. Steam tightness between the condensate evacuating box and the siphon pipe is ensured by means of a ring pressed against the pipe by means of springs.—A.P.-C.

Drying Machine for Paper. Samuel Milne. Brit. pat. 433,544 (Aug. 15, 1935).—The felts of a paper machine are dried by steam-heated cylinders to a low moisture content and raised to a higher temperature than that of the

paper web passing around the drying cylinders.—A.P.-C.

Joint for Paper Drier Felts. James K. Diamond, assignor to Clipper Belt Lacer Co. U. S. pat. 2,025,275 (Dec. 24, 1935).—Joint flaps are secured in superimposed relation upon the meeting ends of the felt on the side opposite to that which comes in contact with the paper on the paper machine, the ends of the felt projecting slightly beyond the adjacent edges of the flaps. The flaps are held together by means of loop-like lacing hooks, one end of which terminates in a prong engaging the free ends of the flaps, and a coupling pin is passed through the loops of all the hoods. A metal sealing strip is interposed between the ends of the felt and the flaps to protect the joint against contact with the steam and vapors driven out of the paper during drying.—A.P.-C.

Automatic Control for Paper Machine Driers. Norman B. Gibbs. U. S. pat. 2,020,056 (Nov. 5, 1935).—In order to prevent scorching of the drier felts, when a break occurs water is automatically sprayed on the felts.—A. P.-C.

Paper Drier. William Whiting, assignor to Whiting Paper Co. U. S. pat. 2,024,079 (Dec. 10, 1935).—The invention provides a machine that dries paper in such a manner as to retain the properties of loft dried paper. The wet paper is passed around drying cylinders to a point just short of where shrinkage occurs, and is then "floated" through a drying tunnel on rolls formed of spaced narrow slats.—A. P.-C.

Vertical Drier for Paper Machines. Earl E. Berry, assignor to Beloit Iron Works. U. S. pat. 2,019,649 (Nov. 5, 1935).—The invention provides an arrangement of vertical driers and felts which does not interfere with the efficiency of ventilation around the drier rolls, so that such driers can be used for light papers as well as for boards. The drier rolls are mounted on the frame in such a manner that they do not obstruct the view of the operator, who can follow the whole path of the paper. The drive is preferably of the silent chain type.—A.P.-C.

Drying Stick. John R. Dunham, assignor to John Waldron Corp. U. S. pat. 2,014,523 (Sept. 17, 1935).—The invention provides a stick for coated-paper festoon driers, having a body portion of cylindrical metal tubing terminating in two end portions having two straight sides and two semi-cylindrical sides. The flat sides have internal folds of the material to provide reinforcing of the flat sides and to take up the excess material to maintain the distance across corners of the flat ends the same diameter as the cylindrical portion of the stick.—A.P.-C.

Continuous Drying of Paper with Superheated Steam. S. I. Chuvikovskii and A. A. Dubinin. Russian patent 29,704 (March 31, 1933).—The steam used for heating calenders is passed through superheaters together with the steam formed from the moisture present in the paper. The excess of steam may be used for various purposes.—C.J.W.

Drying Vulcanized Fiber. G. M. Frolov. Russian patent 30,620 (May 31, 1933).—The fiber sheets to be vulcanized are sprayed with a porous material and are dried while compressed in closed steam-heated containers.—C.J.W.

Canal Dryer for Flat Materials, Especially Board. Benno Schilde, Maschinenbau Akt. Ges. Hersfeld. Ger. pat. 616,213 (March 18, 1934).—J.F.O.

More Economical Drying and Heating in the Paper Industry Through the Utilization of Waste Heat. Paul Wiessner. Wochbl. Papierfabr. 66, No. 42:791 (Oct. 19, 1935).—Brief description of an apparatus for reclaiming the waste heat in a paper mill.—J.F.O.

Automatic Device for the Regulation of the Speed of Pulp Drying Machines with Cylinder Dryer Sections. G. A. Gustavsson, Vastbyggeby. Swed. pat. 83,397 (March 2, 1933).—J.F.O.

Sizing

Studies on Rosin Sizing of Kraft Paper. H. Boedeker. Finnish Paper and Timber J. 17, No. 23:1050, 1052, 1054-1056, 1058 (Dec. 15, 1935).—Kraft papers are much easier to size and require smaller quantities of size for giving satisfactory results on account of the alkaline medium in which the digesting process takes place. Uncolored kraft papers give best sizing results at a *p*H value of about 5.5; this acidity should be raised to *p*H 4.5 when the papers are dyed with sap brown or acid dyestuffs. Beating kraft pulp in an acid medium (*p*H 4.5) decreases the strength properties by 8-10 per cent as compared to beating in an alkaline medium (*p*H 8-9); subsequent sizing decreases the strength further by 3-4 per cent. When black liquor residues are left in the pulp the strength properties increase, the sizing, however, becomes poorer. When sizing is carried out at low acidity, a resinate size containing approximately 35 per cent free rosin was found to give better results than either completely saponified rosin or free rosin size.—C.J.W.

Animal Size for Fine Papers. Frederick S. Klein and Jessie E. Minor. Paper Industry 17:729-733 (Jan., 1936).—A general discussion of their properties in relation to their suitability for use in high grade papers.—A.P.-C.

A New Physico-Chemical Method of Determining Sizing. I. I. Kovalevski. Pulp Paper Can. 36:546-548 (Oct., 1935).—See *Paper Trade J.* 101, No. 15:37 (Oct. 1935).—A. P.-C.

A Study of the Relation of Some Properties of Cotton Rags to the Strength and Stability of Experimental Papers Made from Them. Merle B. Shaw, Geo. W. Bicking and Martin J. O'Leary. Paper Trade J. 102, No. 20; 31-40 (Nov. 14, 1935).—The results confirmed that high acidity resulting from excessive use of alum in rosin sizing has a marked deteriorating effect on paper, that surface sizing does not materially affect the life of base papers of high stability though it seems to serve as a protective surface retarding chemical deterioration of the less stable papers, and that initial quality of the fibers cannot be taken as sole criterion of the degree of excellence of paper made from them.—A.P.-C.

Rosin Sizing and Method of Making Same. William H. Harding and Albert W. Montgomery, assignors to American Cyanamid and Chemical Corp. U. S. pat. 2,027,166 (Jan. 7, 1936).—A mixture or solution of rosin and alkali is subjected relatively suddenly to a temperature between 200° and 500° F. (preferably 280° F.), so that the mix is carried rapidly through and beyond the gelling and foaming stages and saponification is accelerated. The process is conveniently carried out by feeding the rosin-alkali mix so as to form a pool between two horizontal, heated, rotating rolls placed side by side and scraping off the film of practically dry size adhering to the rolls.—A.P.-C.

Paper. R. T. Vanderbilt Co., Inc., Fr. pats. 782,556 and 782,557 (June 7, 1935).—*No. 782,556*—A mixture of clay, alum and quicklime is used for sizing and filling paper, the weight of alum and lime being 10 to 40% the weight of the clay. An example contains 300 parts of clay, 120 parts of alum, 60 parts of lime, 15 parts of trisodium phosphate and (or not) 25 parts of calcium carbonate. *No. 782,557*—A dry mixture is formed of lime, alum and titanium dioxide in such proportions that a gelatinous precipitate is formed on admixture with water which is rendered opaque by the dispersed titanium oxide.—A.P.-C.

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING AUGUST 22, 1936

CIGARETTE PAPER

American Tobacco Co., *Normandie,* Havre, 150 cs.; Champagne Paper Corp., *Normandie,* Havre, 73 cs.; H. H. Strauss, *Indep. Hall,* Bordeaux, 191 cs.

WALL PAPER

F. J. Emmerich, *Carinthia,* Liverpool, 1 cs.

PAPER HANGINGS

———, *Britannic,* Southampton, 4 bls., 1 cs.

PAINTED PAPER

———, *Normandie,* Havre, 11 cs.

NEWSPRINT PAPER

International Paper Co., *Cornerbrook,* Dalhousie, 7,277 rolls; International Paper Sales Co., *Cornerbrook,* Dalhousie, 1,557 rolls; N. Y. Times, *Markland,* Liverpool, N. S., 301 rolls; N. Y. Tribune, *Markland,* Liverpool, N. S., 1,585 rolls; World Telegram, *Markland,* Liverpool, N. S., 610 rolls; Westchester Newspapers, Inc., *Markland,* Liverpool, N. S., 38 rolls; ———, *Markland,* Liverpool, N. S., 179 rolls; Jay Madden Corp., *Washington,* Hamburg, 101 rolls; Perkins Goodwin & Co., *Hamburg,* Hamburg, 36 rolls; News Syndicate Co., *International, I.,* Gatineau, Que., 288 rolls.

PRINTING PAPER

E. Dietzgen & Co., *Hamburg,* Hamburg, 59 cs.

WRAPPING PAPER

Dingelstedt & Co., *London Corporation,* Antwerp, 1 cs.; J. P. Heffernan Paper Co., *Excambion,* Genoa, 50 bls.; M. M. Cohen, *Cliffwood,* Mantyluoto, 98 bls., 621 rolls; Jay Madden Corp., *Cliffwood,* Mantyluoto, 146 bls., 1,854 rolls.

PACKING PAPER

A. J. Bullinger, *Rotterdam,* Rotterdam, 12 cs.

FILTER COMPOUND

P. H. Petry & Co., *Hamburg,* Hamburg, 100 bls.

FILTER PAPER

H. Reeve Angel & Co. Inc., *American Banker,* London, 8 cs.; C. Schleicher & Schull Co., *Hamburg,* Hamburg, 1 cs.

DRAWING PAPER

Japan Paper Co., *American Banker,* London, 1 cs.; H. Reeve Angel & Co., Inc., *American Banker,* London, 2 cs.

SURFACE COATED PAPER

Gevaert Co. of America, *Pennland,* Antwerp, 16 cs.; Dingelstedt & Co., *Pennland,* Antwerp, 1 cs.; Globe Shipping Co., *Bremen,* Bremen, 6 cs., 15 crates.

BASIC PAPER

Dingelstedt & Co., *Pennland,* Antwerp, 7 cs.; Dingelstedt & Co., *Bremen,* Bremen, 20 cs.; Globe Shipping Co., *Bremen,* Bremen, 1 crate.

METAL COATED PAPER

———, *Hamburg,* Hamburg, 1 cs.

BARYTA COATED PAPER

Globe Shipping Co., *Bremen,* Bremen, 10 cs.

COLORED PAPER

International F'd'g. Co., *Hamburg,* Hamburg, 9 cs.; W. Bersch, *Bremen,* Bremen, 4 cs.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., *Carinthia,* Liverpool, 8 cs. (duplex).

DECALCOMANIAS

———, *Bremen,* Bremen, 3 cs.; Sellers Transportation Co., *Bremen,* Bremen, 27 cs.

TISSUE PAPER

W. J. Byrnes, *American Banker,* London, 2 cs.; Van Oppen & Co., *Excambion,* Genoa, 12 cs.; Atlantic F'd'g. Co., *Hamburg,* Hamburg, 8 cs.

IMITATION IVORY BOARD

R. Wilson Paper Corp., *Rotterdam,* Rotterdam, 5 cs.

PAPER BOARD

J. P. Heffenan Paper Co., *Pennland,* Antwerp, 14 cs.

PAPER TUBES

———, *Hamburg,* Hamburg, 123 cs.

MISCELLANEOUS PAPER

Coty Processing Co., *Normandie,* Havre, 1 cs.; Standard Products Corp., *Normandie,* Havre, 6 cs.; ———, *Hamburg,* Hamburg, 15 bls.; Globe Shipping Co., *Champlain,* Havre, 9 pkgs.; National City Bank, *Champlain,* Havre, 15 pkgs.

RAGS, BAGGINGS, ETC.

D. M. Hicks, Inc., *Pennland,* Antwerp, 68 bls. flax pulp; Philadelphia National Bank, *Pennland,* Antwerp, 200 bls. rags; Philadelphia National Bank, *Black Falcon,* Rotterdam, 171 bls. rags; ———, *Carinthia,* Liverpool, 121 bls. rags; ———, *American Banker,* London, 71 bls. rags; ———, *Capulin,* Dundee, 31 bls. paper stock; Castle & Overton, Inc., *Capulin,* Dundee, 139 bls. paper stock; A. W. Fenton, Inc., *Washington,* Hamburg, 27 bls. rags; Castle & Overton, Inc., *Excambion,* Alexandria, 179 bls. rags; Banco Coml. Italiana Trust Co., *Excambion,* Alexandria, 238 bls. rags; R. Blank, *Excambion,* Alexandria, 47 bls. old cottons; E. J. Keller Co. Inc., *Excambion,* ———, 151 bls. rags, 34 bls. bagging; ———, *Bilderdyk,* Rotterdam, 110 bls. bagging; R. Blank, *Rotterdam,* Rotterdam, 136 bls. rags; Castle & Overton, *Hamburg,* Hamburg, 27 bls. rags; Irving Trust Co., *Hamburg,* Hamburg, 92 bls. rags; Manufacturers Trust Co., *Hamburg,* Hamburg, 12 bls. rags; R. Blank, *Indep. Hall,* St. Nazaire, 268 bls. rags; Philadelphia National Bank, *Indep. Hall,* Havre, 138 bls. rags; Castle & Overton, Inc., *Indep. Hall,* Havre, 26 bls. rags; ———, *Indep. Hall,* Havre, 41 bls. rags; Chase National Bank, *Cliffwood,* Gdynia, 76 bls. rags; J. Cohen & Son Co. Inc., *Lehigh,* Manchester, 20 bls. rags; ———, *Lehigh,* Manchester, 11 bls. cotton waste; A. W. Fenton, Inc., *Lehigh,* Manchester, 19 bls. bagging; J. Cohen & Son

Co. Inc., *Lehigh,* Belfast, 71 bls. paper stock; ———, *Lehigh,* Liverpool, 28 bls. bagging.

GLUE STOCK, ETC.

N. L. Lederer, *Washington,* Hamburg, 200 bags bone glue; ———, *Pennland,* Antwerp, 115 bags, 40 bbls., bone glue; ———, *Vulcania,* Trieste, 300 bags hide glue; ———, *London Corporation,* Antwerp, 220 bls. hide cuttings.

OLD ROPE

Continental Bank Trust Co., *Black Falcon,* Rotterdam, 84 coils.

CASEIN

American Cyanamid & Chemical Corp., *Oriskany,* Santiago de Cuba, 37 bags; ———, *Hamburg,* Hamburg, 70 bags; Chase National Bank, *Indep. Hall,* Bordeaux, 333 bags.

WOOD PULP

Castle & Overton, Inc., *Hamburg,* Hamburg, 280 bls. wood pulp, 56 tons; Bank of N. Y. Trust Co., *Hamburg,* Hamburg, 615 bls. wood pulp, 123 tons; ———, *Vulcania,* Trieste, 332 bls. wood pulp; ———, *Giulia,* Trieste, 1,279 bls. wood pulp; ———, *Washington,* Hamburg, 340 bls. wood pulp, 25 tons.

WOOD PULP BOARDS

Jay Madden Corp., *Washington,* Hamburg, 101 rolls, 41 tons; Jay Madden Corp., *Cliffwood,* Wiborg, 95 bls., 13 tons.

WOOD PULP PASTE BOARD

Flexideal Dry Mat Co., *Washington,* Hamburg, 1 cs.

NEWARK IMPORTS

WEEK ENDING AUGUST 22, 1936

H. G. Craig Co., *Donnacona I,* Donnacona, 562 rolls newsprint.

JERSEY CITY IMPORTS

WEEK ENDING AUGUST 22, 1936

H. G. Craig Co., *Donpaco,* Donnacona, 312 rolls newsprint.

ALBANY IMPORTS

WEEK ENDING AUGUST 22, 1936

International Paper Co., *Maud,* Newcastle, N. B., 2,400 cords pulpwood.

BOSTON IMPORTS

WEEK ENDING AUGUST 22, 1936

———, *Carinthia,* Liverpool, 72 bags hide cuttings; ———, *Carinthia,* Liverpool, 3 cs. blotting paper; G. F. Malcolm, Inc., *Carinthia,* Liverpool, 1 cs. tissue paper; E. J. Keller Co. Inc., *Excambion,* ———, 156 bls. rags.

PHILADELPHIA IMPORTS

WEEK ENDING AUGUST 22, 1936

E. J. Keller Co. Inc., *Tonsbergfjord,* ———, 138 bls. rags; ———, *Black Falcon,* Antwerp, 34 bls. rags; M. Friedman, *Black Falcon,* Antwerp, 27 bls. rags; E. J. Keller Co. Inc., *Black Falcon,* 192 bls. rags; G. A. Henshaw & Son, *Capulin,* London, 150 pkgs. old rope; ———, *Capulin,* Hamburg, 1,491 rolls, 8 bls. wrapping paper; Philadelphia National Bank, *Capulin,* Hamburg, 20 bls. rags; ———, *Capulin,* Hamburg, 317 bls. wood pulp, 47 tons; ———, *Capulin,* Dundee, 73 bls. rags; ———, *Clara,* Trieste, 156 bls. wood pulp; ———, *Clara,* Trieste, 100 bags hide glue; E. J. Keller Co. Inc., *Indep. Hall,* ———, 143 bls. rags; J. W. Hampton Jr. Co., *Cliffwood,* Kotka, 393 rolls newsprint; E. W. Twitchell, *Cliffwood,* Mantyluoto, 469 rolls, 11 bls. wrapping paper; ———, *Cliffwood,* Gdynia, 600 bls. sulphite, 92 tons; Parsons & Whittemore, Inc., *Neidareid,* Nova Scotia, 3,994 bls. wood pulp.

BALTIMORE IMPORTS

WEEK ENDING AUGUST 22, 1936

Congoleum Nairn Co., *Black Falcon,* Antwerp, 75 bls. rags; Congoleum Nairn Co., *Black Falcon,* Rotterdam, 109 bls. rags; ———, *Black Falcon,* Rotterdam, 104 bls. wood pulp boards; American Express Co., *Black Falcon,* Rotterdam, 162 pkgs. old rope; ———, *Clara,* Trieste, 200 bls. wood pulp; Congoleum Nairn Co., *Indep. Hall,* Havre, 457 bls. rags; Johaneson Wales & Sparre, Inc., *Cliffwood,* Helsingfors, 300 bls. mechanical pulp, 50 tons; Castle & Overton, *Cliffwood,* Wiborg, 2,376 bls. wood pulp, 475 tons; F. H. Shallus, *Cliffwood,* Kotka, 96 rolls newsprint; Jay Madden Corp., *Cliffwood,* Kotka, 550 rolls newsprint; Jay Madden Corp., *Cliffwood,* Mantyluoto, 236 rolls newsprint; Gottesman & Co. Inc., *Cliffwood,* Mantyluoto, 250 bls. mechanical pulp; M. Sone, *Cliffwood,* Gdynia, 367 bls. wood pulp, 73 tons; ———, *Cliffwood,* Gdynia, 1,000 bls. wood pulp, 200 tons; Johaneson Wales & Sparre, Inc., *Cliffwood,* Gdynia, 1,350 bls. wood pulp, 135 tons.

NORFOLK IMPORTS

WEEK ENDING AUGUST 22, 1936

T. M. Duche & Sons, *Erfurt,* Buenos Ayres, 834 bags casein; N. Y. Trust Co., *Indep. Hall,* Havre, 184 bls. bagging; Castle & Overton, Inc., *Cliffwood,* Wiborg, 1,416 bls. wood pulp, 283 tons; Lagerloef Trading Co., *Cliffwood,* Wiborg, 2,099 bls. sulphite, 368 tons; Lagerloef Trading Co., *Cliffwood,* Wiborg, 366 bls. sulphate, 61 tons; Lagerloef Trading Co., *Cliffwood,* Wiborg, 248 bls. sulphate knotter pulp, 47 tons; Lagerloef Trading Co., *Cliffwood,* Helsingfors, 910 bls. sulphate, 188 tons; Wortendyke Manufacturing Co., *Cliffwood,* Mantyluoto, 484 rolls, 385 bls. wrapping paper.

NEW ORLEANS IMPORTS

WEEK ENDING AUGUST 22, 1936

Parsons & Whittemore, Inc., *Frankenwald,* ———, 900 bls. wood pulp; Gottesman & Co. Inc., *Stureholm,* Finland, 670 bls. wood pulp.

SOUTH HAVEN IMPORTS

WEEK ENDING AUGUST 22, 1936

Price & Pierce, Ltd., *Vardefjell,* ———, 2,125 bls. bleached sulphite.

MONTREAL IMPORTS

WEEK ENDING AUGUST 22, 1936

Price & Pierce, Ltd., *Topdalsfjord,* ———, 13,800 bls. unbleached sulphite; Pagel Horton & Co. Inc., *Consul Corfitzon,* Sweden, 1,500 bls. wood pulp; Pagel Horton & Co., *Topdalsfjord,* Sweden, 9,289 bls. wood pulp; Gottesman & Co. Inc., *Consul Corfitzon,* Sweden, 19,700 bls. wood pulp; Gottesman & Co. Inc., *Wiiri,* Finland, 1,430 bls. wood pulp.

Brown Co. Hearing Set for Sept. 15

PORTLAND, Me., August 24, 1936—Hearing on the Brown Company preferred stockholders' protective committee will be held in Federal Court this city on September 15, at which time a petition to issue certificates of deposit will be heard.

Certain-teed Listings Approved

The New York Stock Exchange approved each week the listing of 107,107 shares of 6 per cent cumulative prior preference stock and 697,320 shares of $1-par common stock of the Certain-teed Products Corporation.

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, August 26, 1936.

Trading in the local paper market during the past week was fairly brisk for the time of year and we are evidently not going to be seriously affected by the customary mid-summer lull. Sales forces of the leading paper organizations have had little chance of relaxation and are now preparing for a busy Autumn campaign.

The newsprint paper market continues to display strength. News Print Service Bureau statistics show that the total North American production for July amounted to 377,234 tons, compared with 338,819 tons in the corresponding month of last year. Stocks at the mills at the end of July were reported at 95,287 tons.

Sentiment in the fine paper market is optimistic. Demand for book, cover, bond and ledger papers is well sustained. Prices are holding to schedule, in most instances. Tissues are moving in good volume. The coarse paper market continues firm, with summer specialties still in good request. Some improvement is noticed in the demand for paper board.

Mechanical Pulp

The ground wood pulp market is in a stronger position due to the unusually dry summer. Manufacturing operations have had to be curtailed in many pulp mills, due to shortage of water. Conditions, however, are gradually improving. Accumulations at the pulp mills are not excessive. Prices are holding to formerly quoted levels.

Chemical Pulp

Steadiness prevails in the chemical pulp market. Demand for the various domestic and imported grades is holding up well. Bleached sulphite and kraft pulps continues very firm. Bleachable grades of unbleached sulphite are attracting greater interest. Prices continue firm and the outlook for the future is encouraging.

Old Rope and Bagging

The position of the old rope market is practically unchanged. Paper mill demand for domestic and foreign old manila rope is light at present. Mixed strings are moderately active. Old rope prices remain steady. The bagging market is stronger. Both scrap and gunny bagging are moving at a fairly good pace. Roofing bagging is quiet.

Rags

No radical changes transpired in the domestic rag market. Demand for new and old cotton rags is routine, with the exception of white cuttings, which are required for export. Roofing grades are dull and unchanged. With high prices prevailing abroad the imported rag market is listless. Quotations on most foreign grades are nominal.

Waste Paper

Board mill demand for the lower grades of paper stock is improving, with the resumption of manufacturing operations. Prices are decidedly firmer. Strictly folded news is now quoted at from 40 to 45 cents and No. 1 mixed paper at 35 to 40 cents. The higher grades of waste paper are displaying strength. Book stock is steadier.

Twine

The local twine market is moderately active. Demand for the various varieties is fairly satisfactory for the season. Inquiries for future needs are being received regularly, some of which should materialize into good sized orders. Despite the usual keen competition in this industry the price situation is practically unchanged.

Mid-States Offers New Gummed Sheet

The Mid-States Gummed Paper Company of Chicago has announced through its paper dealers, the addition of a new opaque gummed sheet to its line of really flat gummed papers.

The new number, known as "Ultra" has an unusually high degree of opaqueness. While it is a high super finish sheet, it has many of the desirable features of a coated stock.

Ultra Gummed Paper was brought out for a specific purpose. Due to rising commodity prices, many companies have found their catalogs, books and price lists obsolete within a few months after publication. To save costly reprints, a demand for an opaque gummed paper which could be printed inexpensively, and pasted in catalogs, price lists, etc., wherever price changes were necessary, has grown. Ultra gummed paper answers this need.

According to the announcement by the Mid-States Gummed Paper Company, the new opaque "Ultra" is available in both dextrine and strong glue gumming, and stocked in standard sizes of 17 x 22 and 20 x 25.

N. C. Head Leaves International Paper

Neal C. Head, vice-president of the International Paper and Power Company since its formation, has resigned to join the Phipps family interests. Mr. Head was an associate of Archibald R. Graustein, former president of International Paper and Power Company, with the latter in the Boston law firm of Ropes, Gray, Boyden & Perkins. He joined the International Paper Company in 1925.

Hummel-Ross Fibre Corp. Declares Extra

The directors of the Hummel-Ross Fibre Corporation, Hopewell, Va., have declared the usual dividend of 25 cents a share and an extra dividend of 75 cents a share on the 67,125 shares $25.00 par value common stock, all payable September 1.

A. P. W. Paper Financing Approved

Stockholders of the A. P. W. Paper Company have approved issuance of $130,000 3½ per cent notes to complete financing for consolidation of the company's two Albany plants.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, August 26, 1936.

BLANC FIXE—The position of the blanc fixe market is practically unchanged. Prices are holding to schedule. The pulp is quoted at $42.50 to $45 per ton, in bulk; while the powder is selling at 3½ to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER—Steadiness prevails in the bleaching powder market. Shipments against contract are moving in good volume for the season. Prices remain unchanged. Bleaching powder is quoted at $2 to $2.25 per 100 pounds, in drums, at works.

CASEIN—The casein market continues firm. Domestic standard ground is quoted at 17½ and finely ground at 18 cents; while French and Argentine standard ground are selling at 17 and finely ground at 17½ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA—Demand for caustic soda is moderately active. The contract movement is seasonal. Prices remain unchanged. Solid caustic soda is quoted at $2.55 to $2.60; while the flake and ground are selling at $2.95 to $3 per 100 pounds, in drums, at works.

CHINA CLAY—The china clay market is exhibiting a fairly strong undertone. Prices are holding to schedule. Imported china clay is quoted at $12.50 to $21 per ton, ship side; while domestic paper making clay is selling at $6.50 to $12 per ton, at mine.

CHLORINE—Paper mill demand for chlorine is well sustained. The contract movement is normal. Prices are holding to formerly quoted levels without difficulty. Chlorine is quoted at $2.15 to $2.55 per 100 pounds, in tank cars, at works.

ROSIN—The rosin market is fluctuating. Paper making gum rosin is now quoted at $5.95 and wood rosin at $6.15 per 280 pounds, gross weight, in barrels, at Savannah. Seventy per cent rosin size is selling at $3.03½ per 100 pounds, in tank cars, at works.

SALT CAKE—Supplies of salt cake are moving into consumption at a steady pace. Prices are unchanged. Salt cake is quoted at $12 to $13; chrome salt cake at $11 to $12 per ton, at works; while imported salt cake is selling at $12 to $13 per ton, ship side.

SODA ASH—The soda ash market is displaying strength. Demand from the paper mills is brisk. Prices remain unchanged. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1.05; in bags, $1.20; and in barrels, $1.50.

STARCH—Due to advances in the price of raw materials the starch market continues firm. Contract shipments are moving freely. Special paper making starch is still quoted at $4 per 100 pounds, in bags; and at $4.27 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA—The sulphate of alumina market is rather quiet at present. The contract movement is normal. Prices remain unchanged. Commercial grades are quoted at $1.35 to $1.60; and iron free at $2 to $2.25 per 100 pounds, in bags, at works.

SULPHUR—The sulphur market continues steady. Yearly contracts are quoted at $18 per ton, in bulk, on orders of 1,000 tons, or over, and $20 on smaller quantities. On spot and nearby car loads the quotation is $21 per ton. All quotations are in car lots, at works.

TALC—Most of the business transacted in the talc market during the past week was along routine lines. Prices remain unchanged. Domestic talc is quoted at $16 to $18 per ton, at eastern mines; while imported talc is selling at $23 to $30 per ton, on dock.

Market Quotations

Paper

Rag Content Bond & Ledgers— Delivered Zone 1	Bonds	Ledgers
100% Rag Ext. No. 1	.36	.37
100% Rag	.28	.29
75% Rag	.21	.22
65% Rag	.18	.19
50% Rag	.15	.16
25% Rag	.12½	.13½

Sulphite Bond & Ledgers— Delivered Zone 1	Bonds		Ledgers
No. 1 Sulphite	7.50	@	8.50
No. 2 Sulphite	6.50	@	7.50
No. 3 Sulphite	6.00		7.00
No. 4 Sulphite	5.50		6.50
Book, B Grade, Cased			
S. & S. C.	5.85	@	6.60
S. & S. C. Litho.	6.10	@	6.85
M. F.	5.60	@	6.35
No. 4 Grade			
Coated and Enamel	6.80	@	7.65
Coated Litho	6.80	@	7.65
Tissues—Per Ream—			
White No. 1	.82½	@	—
White No. 1 M. G.	.77½	@	—
White No. 1½	.62½	@	—
White No. 2	.60	@	—
Anti-Tarnish M. G.	.67½	@	—
Colored	.80	@	—
Kraft	.67½	@	—
Manila	.60	@	—
Unbleached Toilet	2.60	@	3.30
Bleached Toilet	3.94	@	5.26
Paper Towels—			
Unbleached	2.10	@	3.35
Bleached	3.30	@	3.70
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00
Fibre Papers—			
No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75

(Delivered New York)

News, per ton—			
Roll, contract	41.00	@	—
Sheets	46.00	@	—
Kraft—			
No. 1 Northern	4.25	@	4.75
Standard	4.12½	@	—
Southern	4.00	@	—
Boards—per ton—			
News	32.50	@	35.00
Chip	32.50	@	35.00
Sgl. Mla. Ll. Chip	45.00	@	47.50
Jute Lined Chip	42.50	@	45.00
Kraft Liners	60.00	@	62.50
White Pat. Coated	57.50	@	60.00
Binders Boards	67.00	@	75.00

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—		
Moist	24.00	@25.00
Dry	24.00	@25.00
(Delivered)		
No. 1 Domestic and Canadian	27.00	@28.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Division 1	2.70	@	3.30
Division 2	2.65	@	2.75
Division 3	2.60	@	2.70
Prime Qualities—			
Class 1. All Prime Easy Bleaching	2.05	@	2.10
Other Than Easy Bleaching—			
Class 2. Higher than Standard	2.00	@	2.05
Class 3, Standard	1.95	@	2.00
Class 4. Lower than Standard	1.90	@	1.95
(On Dock, Atlantic Ports)			
Kraft Bleached	3.00	@	3.25
Kraft Light & Strong	2.10	@	2.20
Kraft No. 1	1.85	@	2.10
Kraft No. 2	1.70	@	1.85
(F. o. b. Pulp Mill)			
Kraft Domestic	1.80	@	2.00
(Delivered)			
Soda Bleached	2.60	@	—

* Add 60 Cents per short ton, dock charges, for Albany; $2.00 for Lake Ports East and $3.00 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	7.50	@	7.75
Silesias No. 1	5.50	@	5.75
New Unbleached	8.25	@	8.50
New Soft Blacks	3.75	@	4.00
Blue Overall	6.50	@	6.75
Fancy	3.00	@	3.25
Washables	2.25	@	2.50
Mixed Khaki Cuttings	3.50	@	3.75
O. D. Khaki Cuttings	4.25	@	4.50
Men's Corduroy	2.00	@	2.25
New Mixed Blacks	2.75	@	3.00

Old Rags

White, No. 1—			
Repacked	3.25	@	3.50
Miscellaneous	2.75	@	3.00
White, No. 2—			
Repacked	2.25	@	2.50
Miscellaneous	1.75	@	2.00
Thirds and Blues—			
Repacked	2.00	@	2.25
Miscellaneous	1.90	@	2.00
Roofing Rags—			
No. 1	1.75	@	1.80
No. 2	1.15	@	1.25
No. 3 (bagging)	1.10	@	1.15
No. 4	1.10	@	1.15
No. 5A	.80	@	.90

Foreign Rags

New Rags

New Dark Cuttings	2.25	@	2.50
New Mixed Cuttings	2.00	@	2.25
New Light Silesias	4.50	@	5.00
Light Flannelettes	4.50	@	5.00
New White Cuttings	7.00	@	7.50
New Light Oxfords	4.00	@	4.50
New Light Prints	3.00	@	3.25

Old Rags

No. 1 White Linens	7.50	@	8.00
No. 2 White Linens	6.50	@	7.00
No. 3 White Linens	4.50	@	5.00
No. 4 White Linens	2.25	@	2.50
No. 1 White Cotton	4.25	@	4.75
No. 2 White Cotton	3.25	@	3.75
No. 3 White Cotton	2.50	@	2.75
No. 4 White Cotton	1.90	@	2.15
Extra Light Prints	2.00	@	2.25
Ord. Light Prints	1.75	@	1.85
Med. Light Prints	1.55	@	1.65
Dutch Blue Cottons	2.25	@	2.50
French Blue Linens	3.50	@	4.00
German Blue Linens	2.50	@	2.75
German Blue Cottons	2.00	@	2.25
Checks and Blues	2.00	@	2.25
Linsey Garments	2.15	@	2.25
Dark Cottons	1.90	@	2.10
Old Shopperies	1.75	@	2.00
New Shopperies	1.75	@	2.00
French Blues	2.25	@	2.50

Old Rope and Bagging

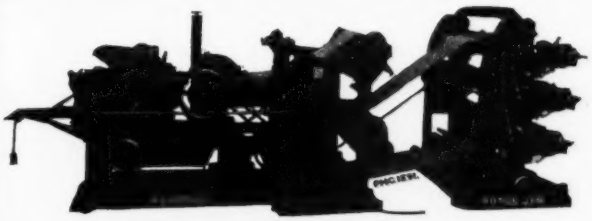
(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	2.10	@	2.15
Domestic	1.75	@	1.85
Wool Tares, light	1.50	@	1.75
Wool Tares, heavy	1.85	@	2.05
Bright Bagging	1.70	@	1.75
Manila Rope—			
Foreign	2.40	@	2.60
Domestic	2.25	@	2.50
Mixed Strings	1.10	@	1.15
New Burlap Cut	2.75	@	3.00
Hessian Jute Threads—			
Foreign	3.00	@	3.25
Domestic	2.80	@	3.00

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	2.55	@	2.65
Ordinary Hard White No. 1	2.25	@	2.35
Hard White No. 2	2.10	@	2.20
Soft White No. 1	1.95	@	2.05
Flat Stock—			
Stitchless	.65	@	.75
Over issue Mag	.65	@	.75
Solid Flat Book	.55	@	.60
Crumpled No. 1	.35	@	.40
Solid Book Ledger	1.50	@	1.65
Ledger Stock	.85	@	.90
New B. B. Chips	.30	@	.35
Manilas—			
New Env. Cut	1.75	@	1.85
New Cuttings	1.35	@	1.45
Bogus Wrapper	.40	@	.50
Old Kraft Machine—			
Compressed bales	1.05	@	1.30
News—			
No. 1 White News	1.15	@	1.25
Strictly Overissue	.50	@	.60
Strictly Folded	.40	@	.45
No. 1 Mixed Paper	.35	@	.40



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Twines

(F. o. b. Mill)

(Soft Fibre)

Coarse Polished—

India			
Belg. White Hemp	.13¼	@	.15¾
India Compress	.14¼	@	.17¾
	.13¾	@	.14½

Fine Polished—

Fine India	.21½	@	.23½
Special	.19½	@	.21½

Unpolished—

Box	.12	@	.12½
Paper Makers	.09	@	.13½
Tube Rope	.10	@	.15½
Wall Paper	.11	@	.14½
Wrapping	.15½	@	.21
Special	.15	@	.15½
Soft Fiber Rope	.12½	@	.12¾

(Hard Fibre)

Bond	.09½	@	.18
Anchor	.09	@	.10½
Manila	.21	@	.28

CHICAGO

Paper

(F. o. b. Mill)

Rag Bond	.12	@	.40
Water Marked Sulphite Bond	.06¾	@	.11
Sulphite Bond	.05½	@	.07¼
Superfine Writing	.18	@	.24
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¾
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07	@	.12
Coated Label	.07	@	.08½
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.03¼	@	.03¾
No. 1 Kraft	4.75	@	5.00
Southern Kraft	3.88	@	4.25
No. 2 Kraft	3.88	@	4.25
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¼
Manila Tissue	.05¾	@	.07
White Tissue	.07	@	.09

(Delivered Central Territory)

News, per ton—			
Rolls, contract	42.00	@	—
Sheets, open	47.00	@	—
Boards, per ton—			
Plain Chip	46.50	@	—
Solid News	50.00	@	—
Manila Lined Chip	55.00	@	—
Patent Coated	65.00	@	—
Container Lined—			
85 Test, per 1000 sq. ft.			1.70
100 Test, per 1000 sq. ft.			1.85

Old Papers

(F. o. b. Chicago)

Shavings—

No. 1 White Envelope Cuttings	1.70	@	2.00
No. 1 Hard White	1.40	@	1.65
No. 1 Soft White	1.25	@	1.50
Ledger & Writings	.60	@	.70
Solid Books	.50	@	.60
Blanks	1.00	@	1.05
Kraits	.80	@	.90
New Kraft Cuts	1.20	@	1.30
Manila Env. Cuts	1.25	@	1.30
Ex. No. 1 Manila	.90	@	1.00
Print Manila	.40	@	.50
Overissue News	.40	@	.45

Old Newspapers—

No. 1 Folded News	.42½	@	.45
No. 1 Mixed Paper	.25	@	.30

Roofing Stocks—

No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper

Rag Content Bond & Ledgers—
Delivered Zone 1

	Bonds	Ledgers
100% Rag Ext. No. 1	.36	.37
100% Rag	.28	.29
75% Rag	.21	.22
65% Rag	.18	.19
50% Rag	.15	.16
25% Rag	.12½	.13½

Sulphite Bond & Ledgers—
Delivered Zone 1

	Bonds	Ledgers
No. 1 Sulphite	7.75	8.75
No. 2 Sulphite	6.75	7.75
No. 3 Sulphite	6.00	7.00
No. 4 Sulphite	5.50	6.50

F.o.b. Mill

Book, M. F.	5.00	@	—
Book, S. S. & C.	5.25	@	—
Book, Coated	6.15	@	—
Coated Lithograph	6.15	@	—
No. 1 Jute Manila	10.50	@	—
Manila Sul., No. 1	6.75	@	—
Manila No. 2	4.25	@	—
No. 1 Kraft	6.00	@	—
Southern Kraft	5.00	@	—
News Print Rolls	40.00	@	—
Straw Board	40.00	@	45.00
News Board	40.00	@	—
Chip Board	37.50	@	—
Wood Pulp Board	70.00	@	85.00
Binder Boards—			
No. 1, per ton	75.00	@	80.00
No. 2, per ton	70.00	@	75.00
Carload lots	65.00	@	70.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.08	@	.08½
New White, No. 2	.04½	@	.05
Light Silesias	.05½		
Silesias, No. 1	.04½	@	.05
Black Silesias, soft	.03½	@	.04
New Unbleached	.06	@	—
Washable, No. 1	.02	@	.02½
Blue Overall	.06	@	.06½
Cottons—According to grades—			
Washable, No. 2	.02½	@	.04½
New Blue	.01¾	@	.02¼
Fancy	.03	@	—
New Black Soft	.04	@	.04½
New Light Seconds	.03½	@	.04
New Dark Seconds 1.75		@	2.00
Khaki Cuttings—			
No. 1 O. D.	.04	@	.04½
No. 2 Mixed	.03½	@	.04
Corduroy	.02	@	.02¼
New Canvas	.04	@	.04½
New Black Mixed	.02	@	.02¼

Domestic Rags (Old)

White No. 1—			
Repacked	4.00	@	4.50
Miscellaneous	3.00	@	3.50
Thirds and Blues—			
Miscellaneous	2.00	@	—
Repacked	2.25	@	2.50
Black Stockings (Export)	4.50	@	5.00
Roofing Stock—			
Foreign No. 1	2.20	@	2.25
Domestic No. 1	1.50	@	—
Domestic No. 2	1.40	@	—
Roofing bagging	1.10	@	—

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	2.00	@	—
Domestic	2.25	@	—
Manila Rope	2.25	@	2.50
Sisal Rope	2.00	@	2.25
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	2.00	@	2.50
No. 2	.90	@	1.00
Wool Tares, heavy	3.00	@	3.25
Mixed Strings	1.00	@	1.10
No. 1 New Light Burlap	3.00	@	3.50
New Burlap Cuttings	2.50	@	2.75

Old Papers

(F. o. b. Phila.)

Shavings—

No. 1 Hard White	2.30	@	2.40
No. 2 Hard White	2.10	@	2.20
No. 1 Soft White	1.80	@	1.85
No. 2 Soft White	1.40	@	1.45
No. 1 Mixed	—	@	.85
Solid Ledger Stock	1.50	@	1.60
Ledger Stock, white	1.15	@	1.20
Ledger Stock, colored	.85	@	.90
No. 1 Books, heavy	.65	@	.70
Manila Cuttings	1.80	@	1.90
Print Manila	.55	@	.60
Container Manila	.55	@	.60
Kraft Paper	1.10	@	1.20
No. 1 Mixed Paper	.45	@	.50
Straw Board Chip	.40	@	—
Binders Board Chip	.40	@	—
Corrugated Board	.60	@	.65
Overissue News	.60	@	—
Old Newspapers	.40	@	—

BOSTON

Paper

Rag Content Bond & Ledgers—
Delivered Zone 1

	Bonds	Ledgers
100% Rag Ext. No. 1	.36	.37
100% Rag	.28	.29
75% Rag	.21	.22
65% Rag	.18	.19
50% Rag	.15	.16
25% Rag	.12½	.13½

Sulphite Bond & Ledgers—
Delivered Zone 1

	Bonds	Ledgers
No. 1 Sulphite	7.50	8.50
No. 2 Sulphite	6.50	7.50
No. 3 Sulphite	6.00	7.00
No. 4 Sulphite	5.50	6.50

F.o.b. Mill

Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.04¼	@	—
No. 2 Kraft	.04½	@	—

(Delivered New England points)

Southern Kraft	.04	@	—
News Print Rolls	39.50	@	—
Straw Board, rolls	.009	—	@35.00
Filled News Board	40.00	@	45.00
Chip Board	37.50	@	40.00
Single Manila Lined Chip	47.50	@	52.50
Single White, Patent Coated News Board (Bender)	55.00	@	65.00
Wood Pulp Board	70.00	@	75.00
Binder Boards (Standard Grade)	67.00	@	75.00

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White	2.00	@	2.10
No. 1 Soft White	1.75	@	1.85
No. 2 Mixed	.75	@	.80
Solid Ledger Books	1.50	@	1.75
Overissue Ledger Stock	1.15	@	1.30
Mixed Ledgers	.85	@	.90
No. 1 Books, heavy	.60	@	.70
No. 1 Books, light	.50	@	.60
Crumpled Stitchless Book Stock	.50	@	.60
Manila Env. Cuttings	1.50	@	1.60
No. 1 Old Manila	.60	@	.65
White Blank News	1.10	@	1.15
No. 1 Kraft	1.05	@	1.12½
Mixed Papers	.35	@	—
Print Manila	.47½	@	.50
Container Manilas	.27½	@	—
Old Newspapers	.35	@	—
Overissue News	—	@	.40
Box Board Chips	—	@	.25
Corrugated Boxes	.47½	@	.50
Kraft corrugated boxes	.95	@	1.00
Screening Wrappers	.40	@	.45

Bagging

(F. o. b. Boston)

Manila Rope—			
Foreign	2.35	@	2.45
Domestic	2.25	@	—
Transmission Rope	1.20	@	1.30
Jute Rope	1.90	@	2.10
Jute Carpet Threads	1.00	@	1.10
Gunny No. 1—			
Foreign	1.90	@	2.00
Domestic	1.75	@	1.80
Bleachery Burlap	4.25	@	4.50
Scrap Burlap—			
Foreign	1.90	@	2.00
Domestic	1.60	@	1.75
Scrap Sisal	1.90	@	2.00
Scrap Sisal for Shredding	2.10	@	2.25
Wool Tares, heavy	1.90	@	2.00
New Burlap Cuttings	2.00	@	2.25
Australian Wool Pouches	2.25	@	2.35
Heavy Baling Bagging	1.75	@	2.10
Paper Mill Bagging	1.65	@	1.70
Bagging No. 2	1.10	@	1.25

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.01¾	@	.02
New White No. 1	.07	@	.07½
New White No. 2	.04	@	.04½
Silesias No. 1	.05	@	.05½
New Black Silesias	.03½	@	.04¼
Soft Unbleached	.07¼	@	.07¾
Blue Cheviot	5.50	@	6.00
Fancy	.02½	@	.02¾
Washable	.0165	@	.0170
Cottons—According to grades—			
Blue Overalls	5.50	@	6.00
New Black, soit	.04	@	.04½
Khaki Cuttings	.04	@	.04½
O. D. Khaki	.03¾	@	.04¼
Corduroy	.01¾	@	.02
New Canvas	—	@	.03
B.V.D. Cuttings	—	@	.06¼

Domestic Rags (Old)

(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	—	@	2.75
Miscellaneous	2.50	@	2.75
White No. 2—			
Repacked	1.90	@	2.00
Miscellaneous	2.00	@	2.25
Twos and Blues	1.75	@	2.00
Thirds and Blues—			
Repacked	1.37½	@	1.75
Miscellaneous	1.25	@	1.62½
Black Stockings	3.90	@	4.00
Roofing Stock—			
No. 1	1.30	@	1.40
No. 2	1.20	@	1.25
No. 3	—	@	1.15

Foreign Rags

(F. o. b. Boston)

Dark Cottons	1.50	@	1.70
New White Shirt Cuttings	6.50	@	6.75
Dutch Blues	2.25	@	2.50
New Checks & Blues	2.50	@	3.00
Old Fustians	1.75	@	1.90
Old Linsey Garments	1.75	@	2.00
New Silesias	5.00	@	5.75

TORONTO

Paper

(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.11		—
No. 2 Sulphite	.08½	@	—
No. 1 Colored	.12	@	—
No. 2 Colored	.09	@	—
Ledgers			
Ledgers, No. 1	.34½	@	—
Ledgers, No. 2	.25½	@	—
Writing	.09	@	.09½
Book—			
No. 1 M. F. (Carloads)	6.50	@	—
No. 2 M. F. (Carloads)	6.00	@	—
No. 3 M. F. (Carloads)	6.00	@	—
No. 1 S. C. (Carloads)	7.00	@	—
No. 2 S. C. (Carloads)	6.50	@	—
No. 3 S. C. (Carloads)	6.50	@	—
No. 1 Coated and Litho	12.00	@	—
No. 2 Coated and Litho	10.50	@	—
No. 3 Coated and Litho	9.50	@	—
Coated tinted	13.00	@	—
Wrapping—delivered—			
Rag Brown	4.75	@	—
White Wrap	3.50	@	—
"B" Manila	4.80	@	—
No. 1 Manila	5.40	@	—
Fiber	5.40	@	—
Kraft, M. F.	5.90	@	—
Kraft, No. 2	5.40	@	—

(F. o. b. Cars Toronto)

News, per ton—			
Rolls (contract)	40.50	@	—
Sheets	45.00	@	—

Pulp

Ground wood	27.00	@	—
Unbleached Sulphite	42.00	@	—
Book (Class 1)	58.00	@	—
Writing (Class 2)	59.00	@	—
Select (Class 3)	60.00	@	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	2.00	@	2.25
Soft White	1.60	@	1.90
White Blk. News	1.25	@	1.40
Book and Ledger—			
Flat Magazine and Book Stock (old)	.80	@	.90
Light and Crumpled Book Stock	.70	@	.80
Leagers and Writings	.90	@	1.00
Manilas—			
New Manila Cut	1.25	@	1.40
Printed Manilas	.50	@	—
Kraft	1.00	@	1.60
News and Scrap—			
Strictly Overissue	.55	@	—
Strictly Folded	.50	@	—
No. 1 Mixed Paper	.40	@	—

Domestic Rags

(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.07½	@	.07¾
Fancy Shirt Cuttings	.02¾	@	.03